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ABSTRACT

This monograph provides teachers and teacher trainees with practical assistance in evaluating and documenting school-level innovations. Authentic and concrete illustrations culled from reports of evaluations of innovative projects funded by the Australian Schools Commission are featured. Examples are used to illustrate seven major aspects which could be included in any project description assembled for dissemination purposes. These are aims on rationale, setting, origins of projects, material and equipment, student activities, funding, and problems. The wide variety of techniques which were employed in evaluation reports are described and several concrete illustrations of how these techniques were used are provided. The techniques considered are interviews, observation, student diaries, usage rates, expert testimony, discussions at meetings of project personnel, achievement tests, and questionnaires. (Author/GK)

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EVALUATION OF EDUCATIONAL INNOVATIONS

BARRY J. FRASER
AND
RIEKE NASH

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EVALUATION OF EDUCATIONAL INNOVATIONS

BARRY J. FRASER AND RIEKE NASH

A Monograph Funded by the Schools Commission and Based on Reports of Augmented Evaluations of Innovations Program Projects

MACQUARIE UNIVERSITY

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PREFACE

Sir Edmund Hillary's climb to the summit of Mt Everest on 28 May, 1953, is widely acclaimed. What is much less acclaimed, however, is the important photographic record of the entire expedition. Not only to climb, but also to record the process, is to perceive one's potential responsibility to future climbers whatever their summits. In educational innovation, our ability to create and implement new projects often outstrips our ability to render adequate accounts of these innovations. As Glass (1972) notes:

> Innovative programs are prone to vanish without a trace ... Without a well-kept historical record, this year's innovation may be a repeat of last year's debacle. (Glass, 1972, p. 105)

There is a scarcity of examples of recent Australian school-level innovations which have been thoroughly documented. In fact, one of the few available sources of valuable and comprehensive documented records of innovations are reports of the "augmented" evaluation (a process in which an external consultant assists an innovator in collecting and reporting information) of numerous projects funded by the Schools Commission Innovations Program.

The central purpose of this monograph is to provide practical assistance to those involved in school-level innovations (whether funded by the Innovations Program or not) in the important task of evaluating and documenting their projects. One of the noteworthy features of the monograph which should be of special interest to innovators is that it is based almost entirely on authentic and concrete examples culled from reports of augmented evaluations funded by the Innovations Program.

The National Innovations Committee of the Schools Commission Innovations Program commissioned the development of this monograph and approved and funded publication in its present form. The views expressed here, however, do not necessarily represent the views of the Schools Commission.

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CHAPTER 1 : INTRODUCTION AND BACKGROUND

The main aim of this monograph is to give practical guidance to innovators wishing to evaluate and document their own projects. The approach taken in later chapters rests heavily upon the use of concrete illustrations drawn from reports of evaluation of innovative projects funded under the auspices of the Schools Commission Innovations Program. In order to facilitate understanding of later chapters and to place them into context, discussion in this introductory chapter provides background information about (a) the Innovations Program, (b) evaluation approaches in the Innovations Program, (c) the place of evaluation in the innovative process and (d) the present monograph's orientation.

INNOVATIONS PROGRAM

The Innovations Program - or what is now officially called the Special Projects Program (School-level Innovation) - began soon after publication of the Karmel Report (Interim Committee of Australian Schools Commission, 1973). According to the Karmel Report, "the intention of the special projects grants is to encourage spirited, though responsible, collaborative efforts to improve the quality of schooling" (p. 128). The basic philosophy of the Innovations Program, as outlined in a chapter of the Karmel Report entitled "Fostering Change", is to improve the quality of Australian education by encouraging change or innovation at the "grass roots" level. That is, the Innovations Program is premised on the belief that educational problems should be identified by people at the school level (e.g., teachers, community groups, parents, students) and solved by these people in their own terms. This model of change can be contrasted with the common "top down" model involving imposition of policies for change from above. The annual budget made available in different years to support school-level innovative projects has ranged between two and three million dollars (approximately one per cent of the Schools Commission's total budget).

To be eligible for Innovations Program funding, a project proposal needs to satisfy several criteria (see Maxwell, 1978). First, although projects needn't provide completely new educational ideas, they must be

innovative within their own contexts. Furthermore, because of this emphasis on innovativeness within context, it is not essential that a funded project be replicable in or transportable to other situations. Second, projects should offer reasonable likelihood of benefits (e.g., advantages for target groups, encouragement of further developments, long-term changes in educational practice). A third set of criteria concerns consistency of the proposed project with the priorities of the Schools Commission (e.g., increasing and advancing equality of educational opportunity, community involvement in schools, basic skills, diversity of choice, and cross-cultural and racial sensitivity).

Some idea of the very considerable variety in the types of projects funded by the Innovations Program can be gleaned from the Schools Commission's (1976, 1979) directories of projects. The 1979 directory classifies funded projects under the following 13 major headings: Teaching Methods, School Organisation (Inter and Intra), Curriculum Areas (e.g., drama and dance, mathematics, vocational education and trade, whole school curriculum development), Remediation in Literacy and Numeracy, Special Education - Handicapped Children, Migrant and Multicultural Education, Disadvantaged Groups, Sexism: Equality of Opportunity, Teacher Support (production of educational materials, teacher enrichment/development), Extra School Activities (camps, outdoor activities, field studies, after-school programs, playgrounds, availability of school facilities), Community-School Relationships (students in the community, school-community interaction, parents and community contributing to school programs), School and Work, Learning Centres and Networks.

The implementation of the Innovations Program depends in an important way on a group of part-time personnel called "counsellors". These counsellors' activities include appraising applications (through face-to-face contact with applicants) and rank ordering of grants, providing stimulation to potential innovators, offering support for projects, and giving advice on how to evaluate projects. Further information about the philosophy and organisation of the Innovations Program is contained in Schools Commission reports (e.g., Schools Commission, 1975a, 1978), several articles (e.g., Musgrave, 1975; McKinnon, 1976; Porter, 1976; Pusey, 1976) and a recently assembled collection of internal program documents (Schools Commission, 1980).

EVALUATION APPROACHES IN INNOVATIONS PROGRAM

The Schools Commission (1975a, p. 198) expressed commitment to evaluation, but distinguished evaluation of the Innovations Program as a whole from evaluation of individual projects funded under the Program. The only major report on Program evaluation has been completed recently (Foyster, 1978), and this provides insight into Program operation and valuable statistics about the changing patterns of grants to different states, school systems, types of projects, etc. Initially no special provision was made for evaluation at the project level so that, "when an evaluation component was introduced into the program, it was grafted onto an already flourishing tree" (Maxwell, 1978, p. i).

During 1975, a document entitled "Guidelines for the Evaluation of Innovations Projects" appeared (Schools Commission, 1975b), and this afforded an important place to evaluation: "All school-level projects which receive grants under the Commission's Innovations Program will be evaluated" (p.1). Also, in 1975, a small group of Program counsellors in each State and Territory was convened to facilitate implementation of these evaluation guidelines.

The 1975 guidelines delineated two distinct types of evaluation, called general evaluation and augmented evaluation. General evaluation was to be undertaken by project directors themselves and reported as part of the final project report (with the possibility of obtaining advice from the small group of counsellors looking after evaluation in each State and Territory or of being placed in contact with other innovators working in similar fields). On the other hand, augmented evaluation involved the appointment and funding of an external evaluation consultant to assist the project director in planning, conducting and reporting an evaluation more comprehensive and substantial than general evaluations normally would be. An important feature of augmented evaluations is that they were conducted only if the project director approved of the evaluation plan and the particular evaluation consultant. This is consistent with the Program's philosophy that project directors should at all times remain in control of all aspects of their projects including evaluation. Important merits in involving external evaluation consultants are that they had time and funds set aside for evaluation, they had expertise and experience in evaluation, and they were sufficiently remote from day-to-day operations to take an independent view of projects.

As part of the process of interpreting and implementing the 1975 evaluation guidelines, the group of Program counsellors specifically involved in evaluation in N.S.W. produced a useful working document entitled "Augmented Evaluation: Purposes and Procedures" (Straton, 1977). Although this document referred especially to augmented evaluation procedures followed in N.S.W., it is likely that fairly similar approaches were implemented in other States and Territories. The first step delineated in Straton's document was the selection of a project for augmented evaluation. A second step involved obtaining the project director's approval for the augmented evaluation. The third stage involved the nomination of an external evaluation consultant and, if both the project director and the consultant were agreeable, the preparation of a costed plan for the evaluation. A fourth step involved Program counsellors in vetting evaluation plans to check their suitability and acceptability to the project director. The fifth phase involved the conducting and reporting of the evaluation by the consultant in close liaison with the project director and the evaluation group.

Mainly during 1976 and 1977, the groups of counsellors involved in evaluation in various States and Territories initiated the augmented evaluation of approximately 80 Innovations Program projects which had been granted funding in the period 1974-1976. Although other similar evaluations (later referred to as Commission-initiated evaluations) were conducted in 1978 and subsequent years for projects in Series Q and subsequent series, the brief for the present monograph involved examination only of augmented evaluation reports for projects prior to Series Q.

PLACE OF EVALUATION IN INNOVATIVE PROCESS

There is a divergence of opinion about the place and importance of evaluation in any plan for innovation. It has been noted in an Innovations Program document that "the Commission is conscious that innovative projects can easily be inhibited or distorted by the demands of evaluation" (Schools Commission, 1975b, p. 5). Maxwell (1978) has summarised the following objections to evaluation which have been raised by various people associated with the Innovations Program:

> Evaluation may stifle innovation rather than encourage it; to subject projects and project directors to critical scrutiny may encourage a retreat to "safe" ideas, may discourage risky ventures, and may even lead to fewer proposals. Teachers and others, unused to much responsibility for identifying and solving local educational problems may need a lot of support and encouragement even to formulate a proposal. Evaluation may undercut the growing confidences of such people in their own capacities. Priority needs to be placed on fostering this confidence, on generating a climate within which educational innovation can occur and be sustained. In the experience of most people, evaluation has been mostly judgmental, negative and competitive. Why, then, place oneself in a situation where one's best efforts, one's best ideas, are looked at critically by an outsider who may very likely create considerable discomfort and insecurity? (adapted from Maxwell, 1978, p. 6)

Although Maxwell believes that most of these statements reflect naivety about evaluation, it is important to note that these feelings about evaluation did exist.

In contrast to the above, Goldberg (1971) and Nisbet (1974) propose cogent arguments supporting the central importance of evaluation in the innovative process. Because innovation has become something of a bandwagon, Nisbet warns anyone who plans to jump on the bandwagon of innovation to consider its potentialities as a hearse. "For anyone who embarks on any innovatory experiment in education encounters a number of problems which may prove disastrous not only to his experiment but also to himself and to his colleagues in the experiment" (p. 5). These problems include an increase in everyone's work load, a loss in confidence and an increase in anxiety (since the effect of innovation is to destroy the teacher's competence), confusion which inevitably accompanies novelty, and backlash (e.g., blaming innovators for educational ills).

Nisbet considers evaluation an essential requirement if we are to have innovation in schools, and makes the following claim:

> In education we are at the stage of the Wright brothers, bicycle mechanics trying to get our contraptions airborne for long enough to demonstrate that their design is sound, and we need not be surprised that the onlookers are sceptical and show little enthusiasm for entrusting themselves to the products. (Nisbet, 1974, p. 18)

The vital roles of evaluation in innovation include providing feedback of information to innovators about project strengths and weaknesses, providing a basis for discussion, and strengthening innovators' capacity for planning. Nisbet also emphasises the crucial role of evaluation in the innovative process by claiming that:

> ... any innovation which does not include systematic provision for checking and reporting what has happened is pointless, a mere expression of protest against the establishment. The poor quality of evaluation is the weakest aspect of most of the present schemes for innovation, and, using the metaphor of the hearse, I think it may prove a fatal weakness for many of these schemes. (Nisbet, 1974, p. 26)

PRESENT MONOGRAPH'S ORIENTATION

A major assumption on which this monograph on evaluation is based is that evaluation and documentation are very important aspects of any innovation. In fact, the two major reasons why innovators should engage in evaluation are clearly delineated in the Schools Commission's evaluation guidelines as being:

- to obtain information which will help the project director and the other participants to conduct and develop the project more effectively and, later, to make decisions about its continuance. Information gathered during the course of the project should be put to practical use to improve the project.
- to obtain information likely to be of value to teachers and others working in similar areas or interested in trying out similar ideas. (Schools Commission, 1975b, p. 1)

Furthermore, the essential purposes of the present monograph also are to provide assistance to innovators in their attempts, first, to collect evaluative information which will contribute to the improvement, smooth functioning and continuation of their innovations and, second, to report information useful in guiding others wishing to try a similar innovation.

Another assumption of this report is that most people involved in school-level innovation will need some assistance if they are to evaluate and document their projects adequately. This assumption is supported by the observation that many of the final reports written by Innovations Program grantees were found to be poor when files were scrutinized in Queensland (Maxwell, 1978) and in N.S.W. (Edwards, 1980). Similarly, the experience of Program counsellors who visited grantees in N.S.W. to discuss evaluations attests to the fact that the large majority of grantees lack knowledge, skills and experience in project evaluation. Also, Edwards' (1980) survey of 35 Program counsellors in N.S.W. revealed that over 90 per cent of these counsellors thought that project directors were having at least some problems with evaluation. Furthermore, although the Schools Commission's (1975b) evaluation guidelines had suggested systematic keeping of records, examination of 89 project directors' reports on file

revealed that only about 30 per cent had attempted any systematic record keeping at all (see Edwards, 1980).

Because augmented evaluation reports represent some of the few existing examples of comprehensive evaluation and documentation of recent Australian innovations, they provide a potentially valuable source of guidance to other people attempting to render accounts of their projects. Augmented evaluation reports, however, have had very low circulation, possibly because many reports are large and cumbersome. Moreover, the material in only a handful of augmented evaluation reports has been made readily accessible in an economical way through publication as articles in national journals (see Power and McBryde, 1975; Fraser, 1977; Fraser and Koop, 1978; Johnstone and Fraser, 1980; Parmenter and Fraser, 1980). Given that augmented evaluation reports largely remain a hitherto untapped source of valuable guidance to other innovators, it is highly commendable that the Innovations Program has commissioned the present report which conveniently draws together and makes readily available some of the material contained in augmented evaluation reports.

This monograph is organised into two main chapters. In Chapter 2: Describing an Innovation, examples are drawn from augmented evaluation reports to illustrate some of the major aspects of an innovation (e.g., aims, materials, student activities, problems) which might be included when describing an innovation. The types of information suggested in Chapter 2 usually can be assembled even if no specific evaluation techniques have been employed, and are useful for disseminating ideas to others contemplating a similar innovation.

In Chapter 3: Evaluation Techniques, concrete examples are given of the use of a wide variety of evaluation techniques (e.g., interview, observation, questionnaire) which have been used in augmented evaluation reports. By using some of these techniques, innovators can enhance their evaluations in two ways beyond that possible by restricting attention solely to the use of the descriptive categories outlined in Chapter 2. First, the use of these evaluation techniques appreciably expands the information base and enhances the description of an innovative project. Second, by using these techniques to collect evaluative information throughout the life of a project, an innovator is provided with a valuable fund of information upon which to base important decisions about project revision and organisation.

CHAPTER 2: DESCRIBING AN INNOVATION

Several writers on curriculum evaluation have claimed that an essential aspect of program evaluation is creating a description or portrayal of the program (Stake, 1975, 1979; Kemmis, 1977; Hall, 1979; Fraser, in press). In fact, Worthen (1977, p. 8) insists that "no evaluation is complete unless it includes a thorough, detailed description of the program or phenomenon being evaluated." In the present chapter, the focus is upon the identification and illustration of some of the key features which might be considered when attempting to describe an innovation.

Whereas Chapter 3 considers specific evaluation techniques for obtaining additional information about a project, emphasis in this chapter is on simple features for describing an innovation. Although not all of these features will be pertinent for a particular innovation, a description of several of them can provide a worthwhile fund of information upon which to base the dissemination of a project. In particular, provision of a thorough description of several of these key features can help others assess the applicability of an innovation to their own situations and to provide the detail needed for effective replication of a project.

The approach followed in this chapter involves drawing concrete examples and illustrations from reports of augmented evaluations of Innovations Program projects. It is hoped that this practical approach, because it is based on authentic examples used in the documentation of recent school-level projects, will provide useful guidance to innovators wanting to give an account of their own projects. The seven key features which are identified and discussed in this chapter are (a) aims and rationale, (b) setting, (c) origins of project, (d) materials and equipment, (e) student activities, (f) funding and (g) problems (e.g., staff mobility).

AIMS AND RATIONALE

Aims and rationale are important aspects to consider when attempting to provide a description of any innovative project. Although the majority of augmented evaluation reports reviewed were found to contain a statement of the project aims or rationale, these statements varied considerably in their degree of clarity, detail and specificity.

Johnstone's (undated) evaluation of a cyclical timetable project (involving one day per fortnight of student activities or electives) provides the following simple and straightforward statement of aims:

> . To expose school children to as much new knowledge and to as many new experiences as possible so that the pupils can decide which of many experiences (or electives) they would follow in the employment of their leisure;
>
> . To teach the pupil to be aware of himself, of others and of the community as a whole. The main change to be brought about is that education and learning are life-long processes. (Johnstone, undated, p. 1)

Similarly, Blackburn's (undated) augmented evaluation of several environmental education projects provides the following informative listing of aims for one of the projects:

> . To establish a residential Environmental Study Centre at Binna-Burra on the edge of Lamington National Park;
>
> . To make the Centre available for use by primary, secondary and tertiary study groups;
>
> . To provide suitable educational materials so as to maximize the educational potential of the national park;
>
> . To encourage children to be more aware of their environment, their place in it, and man's effect upon it;
>
> . In the long term, to raise the standard of environmental education of the young generation;
>
> . For the Centre to be used as a model for future environmental study centres. (see Blackburn, undated, p. 2)

In contrast to the simplicity of the above statements of aims, Searle and Parmenter's (1978) evaluation of a work preparation program at a special school for mildly intellectually handicapped children reported a much more

comprehensive two-part statement. The first part of the statement involved a description of the school's general rationale (referred to as the "value system"), while the second part described the specific aims for individual school subjects compatible with the school's general rationale. The school's value system at the time of the project comprised the following beliefs held in common by the teaching staff:

- Handicapped people have a right to work. Their ability to do so is not fully realized by the community, nor is their right to do so fully accepted.
- The school can assist the handicapped to find work by involving itself more directly in vocational education.
- A work-experience program is an admirable vehicle for achieving this aim. Such a program has the advantage of teaching employers about handicapped people.
- Our pupils have a right to education beyond the statutory leaving age, and for them to exercise this right is a decided advantage.
- Students need access to opportunities for continuing education; this could be catered for in existing institutions such as technical colleges. (Searle and Parmenter, 1978, pp. 11-12)

From these general rationale statements, the teachers at Minerva Street Special School produced a set of specific aims for each school subject. For example, the subject of Industrial Arts had the following nine specific aims in the areas of occupational adequacy, personal adequacy and social competence:

- to develop skills in using the various tools, machines and devices available;
- to develop good attitudes to and habits of work;
- to develop habits of safety;
- to develop basic skills in home maintenance and car maintenance;
- to develop an understanding of the properties and uses of a variety of materials;
- to develop interests in leisure time activities;
- to develop an appreciation of design, an awareness of spatial relationships and an understanding of detail drawing in individual learning situations;
- to form an accurate assessment of individual abilities for vocational placement purposes;
- to provide an environment in which individuals enjoy working towards individual or group chosen objectives. (Searle and Parmenter, 1978, p. 82)

SETTING

Numerous augmented evaluation reports describe details of a project's geographic, architectural, personal and academic setting, and this provides a useful introduction to readers. In particular, because projects funded by the Innovations Program must be judged innovative in their context, a complete description of a project requires consideration of setting. A description of the project's setting enables the reader of a report to assess the relevance of that project to their own personal experience, knowledge, current concerns, students and situation. At the very least, the inclusion of a description of the setting can make a portrayal of a project more interesting, concrete and colourful. Moreover, the interpretation of evaluation findings and their likely applicability to other contexts can be enhanced considerably by describing the setting.

Hogben's (1976) evaluation of a project based at a field study centre in a historic reserve in Beltana includes the following most informative description of the project's setting:

> Beltana is a "ghost town" situated in an arid environment, some 530 kilometers by road north of Adelaide in the Flinders ranges. The days are typically warm to hot while the nights are clear and often very cold. It is a dry place; the annual rainfall is around 200-250 mm (8-10 inches). Within easy reach of Beltana are rugged hills, creeks (mostly dry), gorges, plains (variously covered), old mine workings, and some grave-yards. Within an hour's easy drive to the north is the coal mining town of Leigh Creek; to the south is the small village of Parachilna.
>
> Ivan Hull and his family began their activities at Beltana in 1970, having searched South Australia for a site possessing buildings of historic value suitable for restoration, and an environment favourable for the establishment of a study centre for students. The purchase at low cost of several of the town's old buildings, and their custody over others as buildings of historic interest, provide the Hull family with accommodation (the old railway station and the police residence); a small income (a general store located in the railway station); buildings for the Study Centre (a small museum in the railway station, accommodation and some study facilities in an old hotel and the restored school house); and the opportunity for the restoration and reconstruction of a place of considerable historic interest. (Hogben, 1976, p. 3)

Scheyer Templin (1978) has argued that still photography can make an important contribution in educational program evaluation by illuminating a program's context. Still photography has been used to advantage in some augmented evaluation reports to elucidate project context. For example, Boylan's (1977) evaluation of the project at Bournda Field Studies Centre

included the photograph in Figure 1a to illustrate the appearance of the building and bush environment. Similarly Groundwater-Smith's (1977) evaluation of a project at Carlton South Primary School provided the photograph in Figure 1b to illustrate that the project was implemented in an old brick building set in spacious, pleasant grounds.

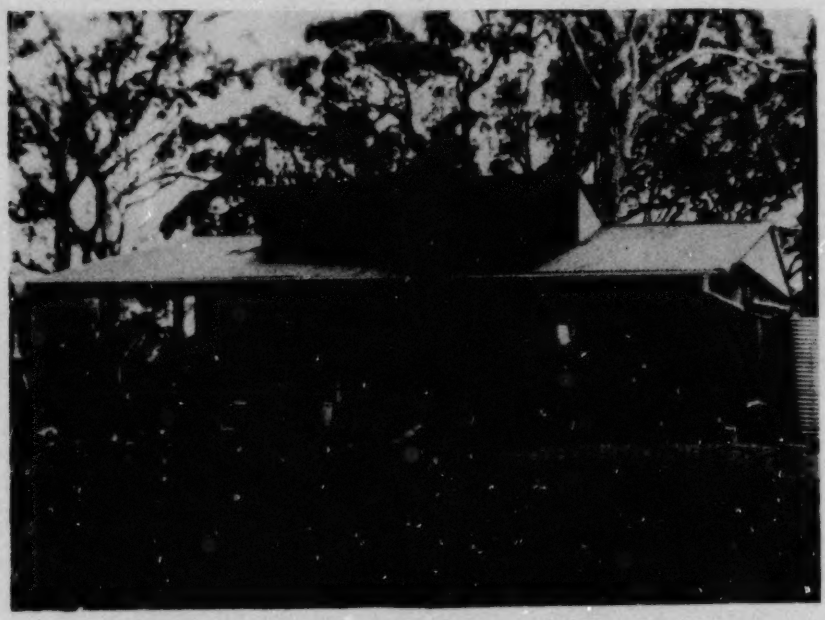


Fig. 1a

Fig 1b

FIGURE 1. Use of Still Photography to Clarify Context of Projects at
(a) Bournda Field Studies Centre (Boylan, 1977) and
(b) Carlton South Primary School (Groundwater-Smith, 1977)

Nicholas's (1979) collection of evaluation reports from the A.C.T. contains salient information about the director of each project being evaluated. For example, understanding of the "Canberra's Introductory English Centre" project for young migrants is enhanced by the following colourful description of the project director:

> It was as a student volunteer that Edna Hopkins first became involved in teaching English as a Second Language to refugees arriving in Australia from Germany and Austria just before World War II. After completing formal post-graduate teacher training, she went to an Arabic-speaking country in the Middle East, and learned at first hand what it meant to have to function in a new language. A slightly different experience of being an alien was afforded by the opportunity of living for some years in the West Indies - a member of a minority racial group...
>
> All these personal experiences contributed to a keen sensitivity to the needs of the student who is learning English as a Second Language. In 1968, Edna Hopkins was the first person to be given a permanent full-time appointment in an A.C.T. school as an E.S.L. teacher...
>
> As a result of insights arising from experience, Edna has always stressed the importance of maintaining the mother tongue and the cultural values which newcomers bring with them, insisting that English, however necessary, is the second language. Another example of her forward thinking was the dissemination of information concerning the school and the community and its social services in the languages of the students whose English was still not sufficiently advanced to be the means of accurate and effective communication. (Steen, 1979, pp. 29-30)

Searle and Parmenter's (1978, ch. 2) evaluation report for the "Developing Independence Through Work Preparation" project provides an exceptionally detailed account of the setting of a project. In fact, in this report, the following classes of setting factors comprise the inputs in a systems model of evaluation:

> The school is described in terms of the adequacy of teaching materials and resources, the attractiveness of classrooms and key aspects of the school's value system (e.g., the belief that handicapped people have a right to work).
>
> The student population is described in terms of the numbers, sexes and ages of students. Test data issued by the Vocational Guidance Bureau (e.g., I.Q., reading age, Purdue Pegboard Test scores, employability rating) are tabulated for individual students. Also student individual characteristics are summarised in a most informative descriptive paragraph for each student. For example, it is noted that Yvonne is a "controlled epilectic" and is "often the butt of teasing", that Raymond has a "most pronounced speech impediment and facial grimace" and is "willing and cooperative", and that William has a "happy and sunny disposition" and a "good understanding of addition and subtraction".

The community in which the school is located was described in terms of the locality, other schools in the same shire, socioeconomic status and qualifications of community residents, and the results of surveys of employers' attitudes to employing handicapped persons. Information is provided about existing community agencies (sheltered workshops, Commonwealth Employment Service, Health Commission, clubs) and facilities for recreation and continuing education. Also the parent body is described in terms of attitudes to the role of the school.

Economic factors affecting employment included information about general unemployment rates for people of different ages and sexes in various Sydney suburbs. (Adapted from Searle and Parmenter, 1978, ch. 2)

ORIGINS OF PROJECT

Understanding of a particular innovation often can be enhanced significantly by an appreciation of the project's historical setting. In fact, several augmented evaluation reports include a description of events which occurred in the years preceding a request for Innovations Program funding, or of events which precipitated the conception of an innovative idea. The provision of these descriptions creates a historical perspective on a project which can help to explain important features and events associated with it. For example, an overview of a large number of augmented evaluation reports reveals that a sizable proportion of projects funded by the Innovations Program already existed in some form prior to the funding period. For these projects, the Schools Commission grant served to enrich or accelerate an ongoing project.

Searle and Parmenter's (1978) evaluation of a work preparation program at a special school provides the following very detailed history of major events occurring over many years and leading up to Innovations Program funding in 1976:

> Following the initial survey in 1969, the school placed a greater emphasis on teaching social competence since the lack of such competence was the most significant cause of failure to cope in post-school life then.
>
> In 1971 the Conference of O.A. Principals came to the conclusion that vocational preparation should be an aim of their schools. This school established a simulated work-situation in 1972 to cater for the need expressed above. Senior pupils were also taken on frequent excursions to real work places.
>
> In 1975 Mr Gary Roberts was granted leave for three months to investigate ways and means of better catering for the needs of the school's senior pupils. He found that employers held favourable attitudes towards the concept of work-experience programmes.

He recommended that a programme modelled on those established in New Zealand would best suit our needs. Further, he put forward the idea that pupils from the school would benefit from attendance at courses at a Technical College.

Parallel with these initiatives, Mrs Wirth's surveys continued to highlight shortcomings in the school's programmes, particularly with regard to the personal development of our pupils, the paucity of their recreational pursuits and opportunities, and the instability they suffered in employment.

In mid-1975 a work experience programme was established and has operated continuously since then. A report of the programme was made late in 1976.

In 1975, also, Mr Gary Roberts and Mr Harvey Ord prepared a submission for an Innovations Program grant to enable the school to develop further these earlier initiatives. This submission was amended by Roberts and Searle in 1976 and a grant was made to enable us to set up our current programme. (Searle and Parmenter, 1978, p. 11)

Lange's (undated) augmented evaluation of an interdisciplinary open area program for Year 8 students provided the following informative description of events preceding the receipt of an Innovations Program grant:

Towards the end of the first semester 1974, the administration was approached by a number of teachers with a request to call a meeting of interested staff to discuss the then Grade 8 program. This initial request had been prompted by informal discussion among staff who were concerned about students' introduction to the secondary sphere and the attitudes that apparently developed about schooling during this beginning year...

So the informal staffroom 'conferences' had successfully identified the problems, some vague notions of alternative procedures to overcome these, and a commitment to the necessity for more formal meetings so that the processes of mobilizing teachers and resources could be established to support the operationalization of these ideas.

This commitment that was established on an organized basis at the administration-called meeting in mid-1974 was given further momentum when it became known that funds were available for 'grass roots' programs of this type from Schools Commission: Special Projects Program...

Though an enormous amount of time, effort, and planning had been committed during these early planning and development stages, the general feeling was that the project at its then level of conception could not go ahead unless the funds were made available. It was considered that the identified materials and resources were essential for the program to operate in a supportive and flexible environment. (Lange, undated, pp. 4-5)

Connors' (1979) augmented evaluation of a women's electoral lobby careers brochure project illustrated the catalytic role of the Schools Commission Innovations Program for one group of innovators:

> One member of the WEL (ACT) Education Action Group was in close touch with the Schools Commission, and was able to focus our attention on the possibility of applying for funds for a special project aimed at lifting the aspirations of girls who had been identified by the Commission as 'an educationally disadvantaged group'. I feel now that this personal contact with the Schools Commission was significant. As a group, we had not hitherto seen this link between us and the work of the Schools Commission.
>
> In November 1974, the Education Action Group of the Women's Electoral Lobby (ACT) received advice that it had been granted $3,000 to produce a booklet ... The brochure The Facts of Life was an attempt to put before secondary school girls in Canberra some of the facts about women's working lives; to help girls think realistically about the future; and to challenge some of the outdated myths and stereotypes. (Connors, 1979, pp. 162-163)

MATERIALS AND EQUIPMENT

In many Innovations Program projects, a major use of funding is the purchase of materials or equipment. Consequently information about materials used is important for those wishing to know about the project or to attempt something similar. Numerous augmented evaluation reports provide a rich source of information about project materials and furnish several good examples of how project materials might be described to others.

Morison's (1978) evaluation of an innovative gross motor education program for moderately mentally handicapped children includes an illuminating description of materials. Figure 2 shows diagrams illustrating some of the equipment used by students, and the following verbal description is provided to accompany the diagrams:

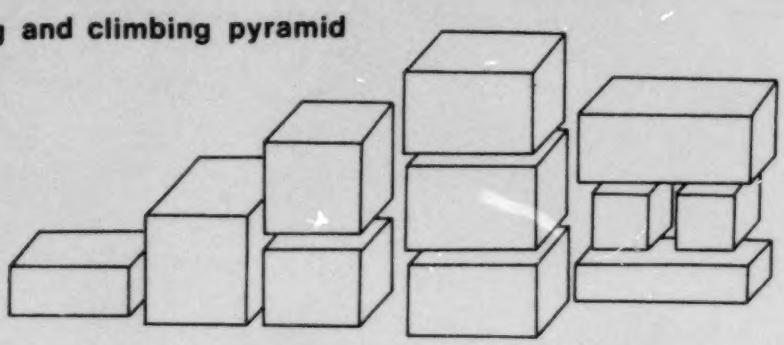
1. Building Aid Climbing Pyramid is a tactile mountain of 14 pieces of foam rubber covered with vinyl and used to build a climbing hill for stimulation and creativity.

2. Box Maze consists of ten five-ply boxes with sides out and ends out, or with a shape cut in a side. The task is to negotiate the maze. Two children do it, with hands joined or elastic tied to their legs to make them realise that they must make changes in their movements.

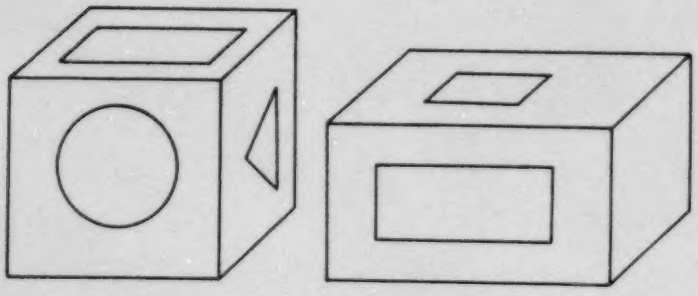
3. Tunnel Crawl Hoops are stitched into a tunnel so that children cannot see the end. The tunnel crawl can be moved to different directions and can be folded up.

4. Five Hinged Maze Walls Four or five sheets of three-ply, hinged and stood in different and varying positions, form a maze. (Adapted from Morison, 1978)

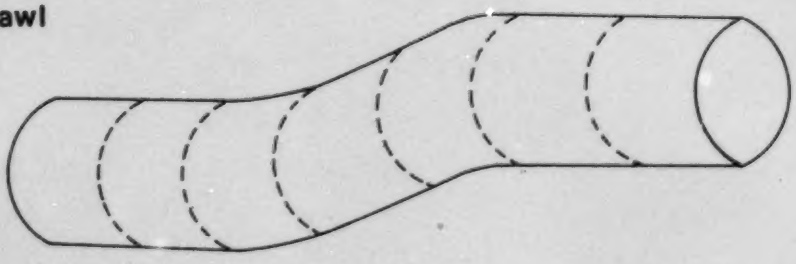
1. Building and climbing pyramid



2. Box maze



3. Tunnel crawl



4. Hinged maze walls

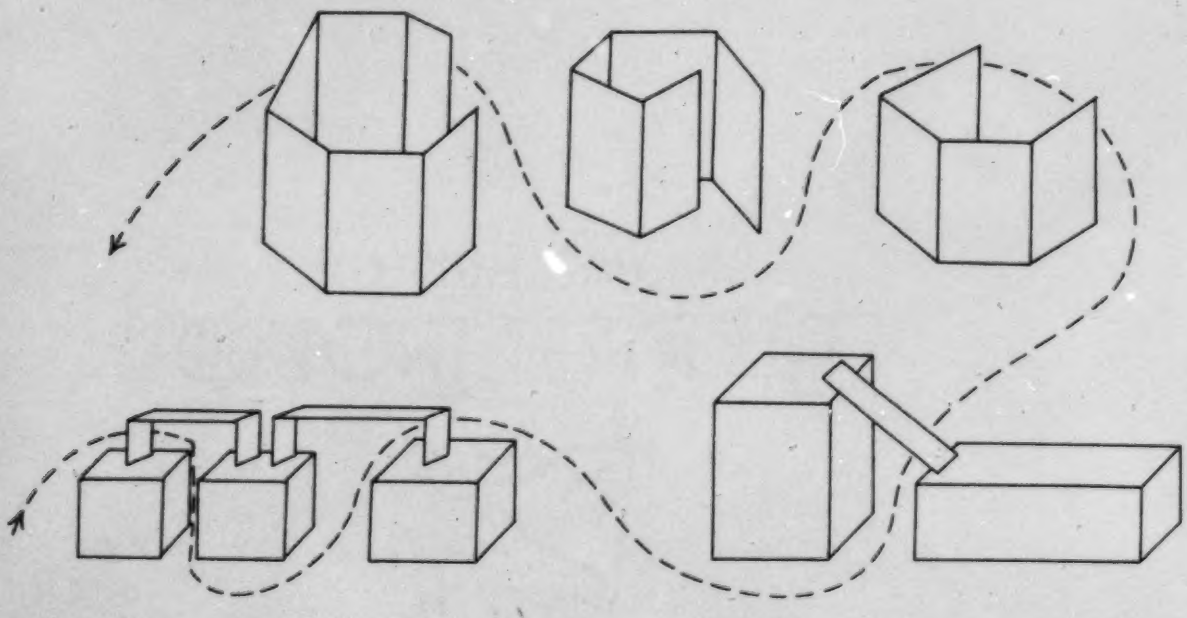


FIGURE 2. Gross Motor Equipment for Moderately Mentally Handicapped Children (Morison, 1978)

Another example of a description of equipment is contained in Blackburn's (undated) evaluation of an environmental education project involving students in expeditions into the bush. For example Blackburn provides the following informative list of equipment which was purchased with Innovations Program funds for use in each of three expeditions:

8 x 3 man nylon tents with aluminium poles and pegs
6 x 2 man nylon tents with aluminium poles and pegs
18 x 'H' frame packs - nylon - 'Mt. King'
18 x 'H' frame packs - nylon - 'Mt. Erica'
4 x tomahawks with carriers
4 x machetes
2 x stay sharp knives
8 x 'silva' type 3 compasses
8 x plastic water buckets
8 x 1 gallon billies
1 x first aid kit - miscellaneous items
10 x plastic map pockets...

A listing of equipment such as this one can provide valuable guidance to other teachers attempting to organise similar experiences for their students.

STUDENT ACTIVITIES

A major feature of many projects funded by the Innovations Program is that they afford students the opportunity to engage in novel, innovative activities not normally experienced at school. An important part of a portrayal of these projects, therefore, is to make clear to audiences the nature of these student activities. In this section, three good examples of the portrayal of student activities are drawn from augmented evaluation reports.

"The Film Creativity Project of the A.C.T. Children's Film and Television Council" exemplifies an innovative project which involved students in an unusual activity, namely, film making. In his augmented evaluation report for this project, Fordham (1979) describes in detail several typical activities in which students engaged when making films. For example Figure 3, which is taken from Fordham's report, shows a film script on the theme of "doomsday" created by a group of Year 5 students.

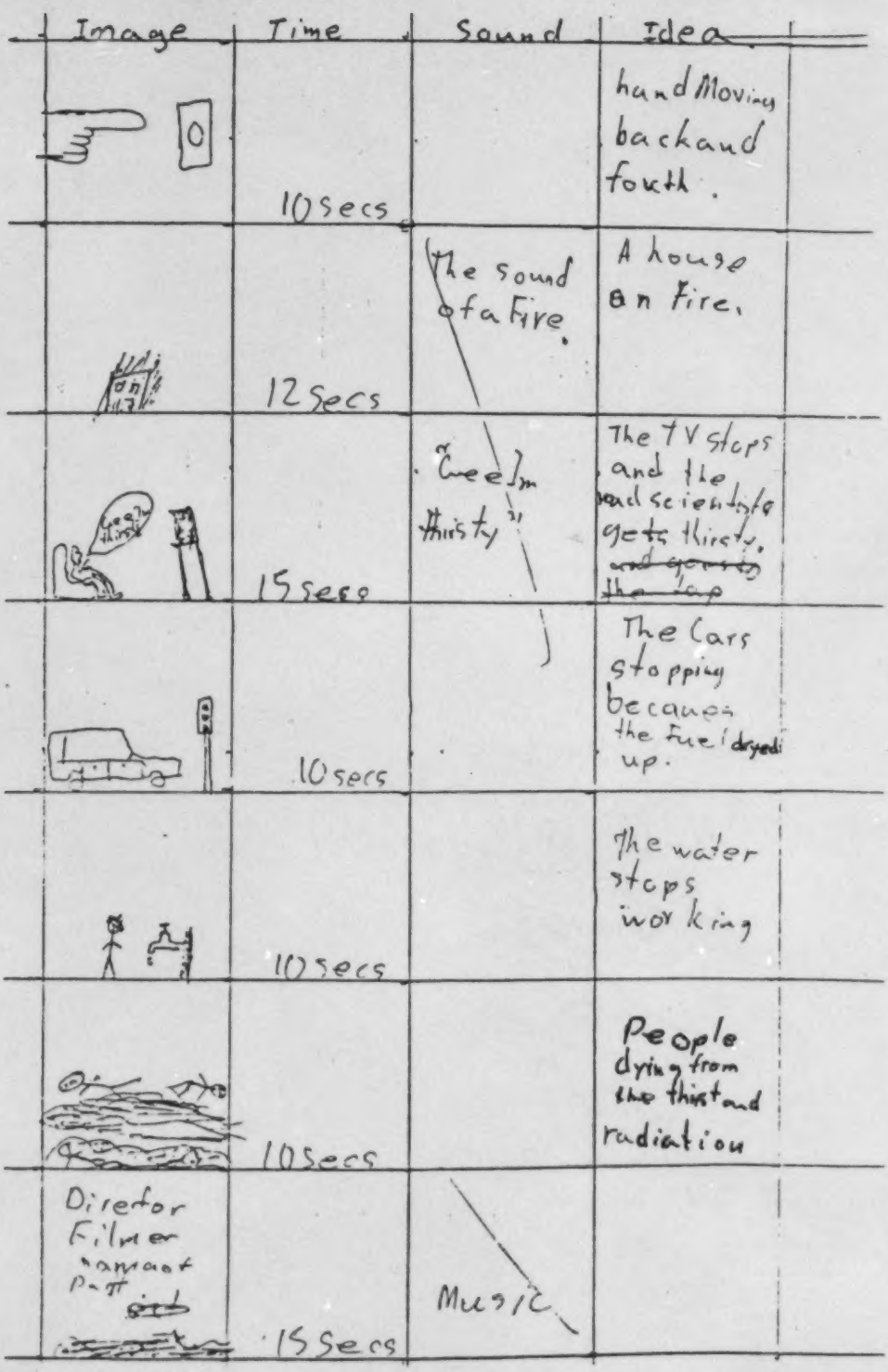


FIGURE 3. A Film Script on the Theme of "Doomsday" created by a Group of Year 5 Students (from Fordham, 1979, p. 64)

Another Innovations Program project in which students engaged in unusual activities was a mathematics project which involved students in performing plays about the lives of ancient mathematicians. Fraser and Koop's (1977) evaluation report contains a copy of one of these plays (entitled "Thales of Miletus") in an appendix to permit ready usage of

the play by other teachers. Figure 4 shows an extract from this play, and clarifies how mathematics and history have been combined into a play suitable for use by junior high school students.

THALES: Please, Anaximander ...

NUISERRA: Look behind you, Thales, look at our pyramids. They were built over two and a half thousand years ago by our ancestors ... two and a half thousand years ago. How high do you think they are?

THALES: About the same length as one hundred and sixty paces.

NUISERRA: A good guess ... better still, how would you measure them exactly?

ANAXIMANDER: He's trying to discredit you.

THALES: Are you asking me for a simple method of measuring the height, or do you also want me to measure the height here and now?

MANETHO: I suppose you want men and equipment to measure the height.

THALES: It's a simple method you want, isn't it?

NUISERRA: Show us how you would do it, for no man has ever measured the height since they were built.

THALES: I need only a man and some wooden pegs.

ZOSER: (To Manetho) Do you really think he can measure the height?

MANETHO: Not a chance. No one has ever answered the problem. The physical effort to measure the pyramid is just too great. The arrogant and conceited always meet defeat with this question. Let's watch him squirm.

THALES: Now you shall see how I would do it. Hm ... (Zoser and Manetho smile at each other and settle in their chairs, comfortably as if expecting a long wait. Anaximander looks expectantly at Thales)

THALES: Sorry ... sorry for the delay. I'll just make myself comfortable on the ground, like this. (Stretches himself out) Anaximander ...

ANAXIMANDER: (Puzzled but eager to do whatever Thales asks him) Yes, Thales, right here. (Whispers) Are you all right?

THALES: Yes, of course. Just do what I ask you. Mark out the length of my body. Put one peg here at my head and the other at my feet. Have you done it? That's right, thank you. Now help me up.

NUISERRA: Will you explain what you are doing, Thales?

THALES: Certainly. My student just marked out the length of my body on the ground. See between these two pegs. Now if I stand here, right where my head was, and the sun casts a shadow of my body the same length on the ground, then the shadow of the pyramid is the same length as its height ... See?

ZOSER: What's that you're saying?

THALES: I'll explain again. It's really very simple ... I lie down in the sand thus ... and my body makes an impression equal to my length. Now I stand up ... For goodness sake, Anaximander, help me stand up ... Now I stand up near where my head was, here. When my shadow, caused by the sun, is the same length as my body impression in the sand (Points to sun and points to sand as he says the words), then the shadow of the pyramid is the same length as its height - right? No - don't answer. So all we have to do is to wait for my shadow to be the same length as my body impression and, at the same time, measure the pyramid's shadow taken from the centre of its side. Right?

ANAXIMANDER: (Big smile) Right!

THALES: It's a right angled triangle - Two sides equal about the right angle. The most important triangle there is.

FIGURE 4. Extract from a Play, "Thales of Miletus", about the Life of an Ancient Mathematician (from Fraser and Koop, 1977, p. 53)

The "Environmental Study Centre" is a project which involved a group of students in the preparation of an environmental area. Blackburn's (undated) augmented evaluation report for this project provides the following useful description of the activities engaged in as part of this project:

> Miss Sonter's workforce consists mainly of Grade 11 students. A nucleus of about twenty students spends around four hours each weekend working on the area. They are very enthusiastic about the work and give of their time freely, even though they will not derive the benefit of their labours - that will be a legacy for future generations of students.
>
> When the slash pines were planted a post hole digger was engaged because it was a rush job to get them all planted. The ground is very hard and digging holes manually is a very exhausting process. Since then however all holes have been dug by students and loam carted in to give the trees a start. All the trees planted have been donated by students and parents and there is no shortage of further offers.
>
> Planning of the work to be done is decided upon by the students in consultation with Miss Sonter. Besides digging holes and planting trees, they have built several small log bridges across the creek, cleared the ponds of rubbish, cut steps into a bank and erected a hand rail, set up a class area of log seats with seating for forty and built themselves a barbecue which they use about once a month after their working bee...
>
> Most of the students who are engaged in working on the area have, of course, been raised in the city and, like most city children, are quite naive about many things, particularly in relation to plants. No attempt has been made to lessen the effort required in digging holes in hard ground - they have discovered that soaking with water helps make the job easier... Many hours of labour were spent one weekend cutting a set of steps into a rocky bank. The end product was very functional but heavy rain showed the students the erosive effect of running water and resulted in much of their work being destroyed - a difficult way to learn, but very effective. (Blackburn, undated, pp. 7-8 & 11)

FUNDING

There are two main reasons why provision of details of funding and expenditure is an important feature of a complete portrayal of a project. First, although project directors are responsible for arranging detailed auditing of their grants, discussions of funding contained in augmented evaluation reports provide general information to those concerned with accountability in the broad sense. Second, specific details about the costs involved in implementing a specific innovative project can provide invaluable assistance to others attempting a similar innovation.

One of the problems inherent in describing details of a project's financial expenditure is the fact that Innovations Program funding quite often is used to support only part of a more comprehensive and integral project. A good example of this situation is described in the report of the evaluation of a history of mathematics project at Vaucluse Boys High School:

> It is vital for a proper understanding of the present report, however, to appreciate that Schools Commission funds were deployed in supporting only some parts of a more comprehensive and ongoing project. Firstly, in terms of timing, Mr Grunseit had already completed substantial amounts of historical research and the writing of versions of some articles and plays prior to receiving the Schools Commission grant. Moreover, now that the Schools Commission's period of funding is terminated, Mr Grunseit has every intention of both modifying and extending previous work. Secondly, while Schools Commission funds were spent specifically on the purchase of video and photographic equipment, considerable resources from elsewhere were required to support other aspects of the project. For instance, the Teachers Resources Centre provided support for the production of slide-tape kits, and the vast time commitment and modest expenditure on typing and stationery involved in the historical research and the production of articles and plays were supported either by Vaucluse Boys High School or the project director himself. (Fraser and Koop, 1977, p. 4)

A good example of an informative description of funding details is shown in Table 1, which is based on figures tabulated in Blackburn's (undated) evaluation report for an environmental project involving discovery, adventure and survival in the semi-wilderness. This table provides an interesting comparison of the expenditure anticipated by the project director at the time of applying for the grant with the actual costs incurred. From this comparison, it can be seen that the actual costs exceeded those anticipated by an amount in excess of $1,700, which is almost 40 per cent more than expected. The biggest discrepancy in cost occurred for bus hire, although there also was a reasonable discrepancy for food costs.

Three features of this information about expenditure are noteworthy. First, as the Innovations Program grant was for $3,000, it was intended that students would pay a certain amount towards the costs of each expedition. Consequently, this project provides another example of one in which Schools Commission funding was requested for partial support of a project. Second, this project illustrates that unanticipated circumstances (e.g., inflation) can give rise to unexpected cost increases that potentially can cause problems in project management. In the present instance, the additional costs were covered by increasing the charge made to each student for the

expeditions. Third, and most importantly, the information contained in Table 1 provides very useful information about likely costs for other teachers contemplating a similar innovation.

TABLE 1. Itemised Breakdown of Anticipated and Actual Costs of Expeditions (from Blackburn, undated)

Item	Anticipated Cost $	Actual Cost $
Equipment		
Tents & packs	1,100	992
Compasses	30	26
Gas primuses	40	54
Utensils & tools	30	160
First aid kit	-	9
Bus Hire	1,800	2,979
Food	1,200	1,572
Publicity & Stationery	150	58
Postage & Administration	150	197
Films & Maps	90	282
	4,590	6,329

Lehman's (1978a) report of an augmented evaluation of a project involving an alternative to the traditional faculty, classroom and graded study system also provides a useful description of expenditure. In particular, this description illustrates how Schools Commission funding was used to support certain facets of an overall program, and proposes an interesting system for categorising different costs. The Innovations Program grant was for $12,715 altogether and this was used to fund an existing program which was hampered by lack of sufficient and appropriate materials. A brief summary of Lehman's description of expenditure is given below:

Start-up costs The Grant funds were used to supplement the ongoing Year 7 and Year 8 operations on a "start-up" cost basis.

Operational costs were not supported by Schools Commission funding, but by using existing school funds and appropriate, generous assistance from the school's Parents and Citizens Organisation.

Management costs were borne by school personnel in their normal course of duty.

Per learner start-up costs The Innovations Program grant provided start-up costs for the 600 students in Years 7/8 in 1976 of approximately $9,300 for non-expendable items ($15.50 per student) and approximately $3,400 for expendable items ($5.70 per student).

Per learner operational costs The school undertook upkeep of non-expendable items of equipment. However, in future years, it is expected that the module concept will require a budget of approximately $6 per student in addition to whatever the school has normally spent. For example, the effect of the module upon expendable items in the Art, Home Science and Industrial Arts courses has been to add an annual increase in excess of $4 per student.

Per learner management costs As the module was undertaken by staff in the normal course of duty, there were no Innovations Program funds used for this purpose (e.g., teachers' salaries). (Lehman, 1978a, pp. 9-10)

PROBLEMS

It is desirable that reports of innovative projects include descriptions of problems encountered. Not only is an appreciation of problems necessary for a full understanding of a project but, more importantly, the identification of specific problems can alert other innovators (whether funded by the Innovations Program or not) about potential difficulties which could need to be overcome when attempting similar projects. While problems associated with specific innovative projects are described in particular augmented evaluation reports, this section identifies and discusses five general problems which characterised several different projects. These five problems are a) feelings of isolation, b) time delays, c) staff mobility, d) failure to establish need for an innovation and e) ineffective communication between innovators and others.

Feelings of Isolation

There is a certain amount of evidence contained in augmented evaluation reports which suggests that innovators often experience feelings of isolation. For example, the director of an Innovations Program project involving the development of history of mathematics materials explicitly expressed concern

about working in isolation and receiving very little feedback or constructive criticism about his work (see Fraser and Koop, 1977, pp. 36 & 77). For this project director, contact with the evaluation consultants throughout the augmented evaluation played a very valuable role in overcoming this sense of isolation and providing the support and constructive suggestions he was seeking. Beck and Goodridge's (1978) evaluation in Western Australia of 15 Innovations Program projects related to community involvement incorporated a two-day conference in which project directors came together to share their experiences. According to Beck and Goodridge, this two-day conference may have been the most important and beneficial part of the evaluation because it fulfilled a need for support and sharing of ideas.

Connors' (1979) augmented evaluation of the Women's Electoral Lobby Careers Brochure project provides further telling evidence that a need for encouragement and support is strongly felt by people contemplating an innovation. In particular, the fact that the Innovations Program officially funded this project provided considerable motivation to commence and continue the innovation. Connors notes that:

> The Schools Commission gave us a lot more than $3,000. It helped us see ourselves as innovators in our own community, and gave us a sense of our own power to influence change. In some ways, it is frightening to admit that a group of people who have fared so very well comparatively in our education system need an official agency to tell them their ideas are worth something. How pathetically powerless must many others feel!
>
> The money was important. It made the venture manageable for us, and far less daunting. It also increased our own commitment. After all, we had been entrusted with public money, and I know a number of us felt a responsibility to match it with our own time and energy... In this way, our project was a 'model' in terms of the philosophies and policies of the Schools Commission. The money was not a handout - it was a catalyst. It unleashed energy and initiative rather than crushing it. Far from creating dependence on the Schools Commission, this grant was for some of us a useful temporary 'crutch' we probably no longer need. (Connors, 1979, p. 176)

Time Delays

According to evidence available in augmented evaluation reports, time delays can precipitate important practical problems for those engaged in initiating and maintaining an innovation. Although Innovations Program funding nowadays is organised so that new grants are available at the commencement of each new school year, this procedure was not always followed for the earlier series covered by augmented evaluation reports. Consequently, delays between the time of submission of an

application and the granting of funds sometimes gave rise to a variety of problems for specific projects. For example, when Innovations Program funds were made available for the commencement of an open area project in August, certain difficulties were experienced in the changeover to open organizational patterns for students who had already spent two-thirds of the school year in more traditional surroundings (see Lange's undated augmented evaluation report). Similarly, Groundwater-Smith (1977) reported that delays between the commencement date anticipated by project personnel and the actual time of award of the grant meant that some of the original project proposers had left the school, that the costs of some of the materials supported by the grant had increased appreciably, and that some of the materials originally requested were no longer appropriate.

An interesting example of a delay in progress on an innovative project is provided in Blackburn's (undated) evaluation report for an environmental education project involving the construction of a building which blended in and didn't interfere with the rainforest environment. It was found that a delay of about six months was experienced in obtaining shire council approval for such a building. For example, a sign stating intention to build and calling for objections had to be erected on the site for 28 days, and certain councillors were keen that this environmental centre should not be opened prior to another centre in the area sponsored by another organisation.

Staff Mobility

One of the most common sources of problems with Innovations Program projects is staff mobility. In particular, quite serious problems can arise when key personnel involved in the initial conception and implementation of an innovation leave the project (usually to take up an appointment in another location). Ingle's (1978) augmented evaluation of the Community Reading Centre project provides an informative description of the problems experienced when the original applicant withdrew soon after the funding was made and when a further change of grantee occurred after the project had been running for one year. The problem of staff mobility in this project is described by Ingle in the following way:

> At the outset, the original applicant suggested that since she was unable to continue, it would have been better if the project had been allowed to lapse. In retrospect it may have been wise to take this advice. Most projects of this nature depend greatly upon the involvement, reputation and vision of the person originally involved.

> In this case, Mrs Harris was unique because of her work with the Cromer Reading Development Centre. When the project was transferred to Mr Liddell there was bound to be some difficulty in that Mrs Harris was employed at the same school and had to stand by and watch the development of the project which she had originally regarded as "hers". Further problems followed when it became clear that the Principal of Cromer School regarded it as "his". (Ingle, 1978, p. 16)

Similarly, Groundwater-Smith's (1978) evaluation of the Centres of Learning project illustrates that problems were experienced when the original project director and several project teachers left the project. In particular, the key problem was that:

> The staff implementing the project were not those who had conceived of it. There was a notable commitment on the part of two members of the new planning team, whilst others had either teaching styles antithetical to the underpinning philosophy of the innovation or were less experienced and less secure as classroom practitioners. (Groundwater-Smith, 1978, p. 5)

Failure to Establish Need for an Innovation

There is some tentative evidence in augmented evaluation reports which suggests that the success of an innovation may depend in part upon the extent of the need established for the innovation in its context. This is certainly consistent with the intuitively plausible notion that a project is more likely to be successful where a clear need for the innovation has been established than in a situation where the need for the innovation is dubious.

Ingle's (1978) evaluation of a project involving a community reading centre provides a good illustration of a situation in which failure to establish a clear need for the innovation contributed to its lack of success. Although a major component of the program was intended to cater for adult non-readers, Ingle's report indicates that the area served by the project was middle class and that the number of adult non-readers in the area was likely to be 20 at the most. When this is added to the fact that adult non-readers are notoriously hard to attract to classes (especially ones held in a primary school), it appears that need for this project in this area did not exist. This notion is well supported by the fact that only a single adult non-reader, in fact, attended the centre throughout the project. Ingle claims that:

> Although the submission was very thoroughly prepared, the one major weakness was in the survey of need for the existence of the project. Even a casual observation of the Cromer area would suggest that it is not a "fertile ground" for adult non-readers. Furthermore, there was provision for such people nearby in evening colleges and technical colleges. (Ingle, 1978, p. 16)

In contrast, an apparently quite successful innovation involving resources in the areas of language, mathematics and craft was located in a school in which there were reasonably strong grounds for assuming that many students could be stimulus deprived. In particular, evidence from Groundwater-Smith's (1977) report showed that 65 per cent of students came from homes where the father's (or single parent's) occupation falls into the broad tradesman's category, and where almost half of the families had English as a second language at home. This evidence helps to establish that there was a need in this school for a project which involved the use of considerable resources for learning.

Ineffective Communication Between Innovators and Others

Augmented evaluations provide some good illustrations of the importance of effective two-way communication between those involved directly with an innovation and other people. There are considerable differences from project to project, however, in the required levels of communication and in terms of the people (e.g., school principals, teachers, parents, community groups) with whom it is important for project personnel to communicate.

There are several good reasons why two-way communication is important. First, by deliberately seeking information about their projects from others, innovators are likely to have a much more informed basis for making important decisions about how to organise and modify their innovations. Second, there are interested groups of people (e.g., parents and other teachers) who deserve to be informed and consulted about an innovation. For example, Groundwater-Smith's (1977, p. 42) evaluation report reveals that a teacher who had arrived in the school after the planning stage of the project perceived "a definite policy of exclusion" and "being kept in the dark". Third, because jealousy or resentment can arise sometimes between people excluded from a project, acceptance and understanding of the project by the school principal, other teachers or parents can be critical for the successful implementation and eventual continuation of a project.

An example of an innovation in which the project director took special steps to achieve effective communication with parents is an environmental education program evaluated by Blackburn (undated). Because some parents were somewhat hesitant about the idea of their children going on expeditions, the project director required the parents of each student going on an expedition to attend two briefing sessions. These sessions clarified aims, rationale and organizational details, involved the showing

of slides and movies of the type of country involved, and enabled the parents to get to know the project director. Blackburn's augmented evaluation report shows that these briefing sessions were very successful in dispelling parents' fears about the expeditions.

Brady's (1979) augmented evaluation of an aboriginal community education project is an example of a project for which less than optimal communication with other teachers and with some parents detracted from the overall success of the project. Although this project was clearly successful in the eyes of the aboriginal children and their parents, many teachers and the parents of white children felt that the project could seriously disadvantage white children. According to Brady (1979, p. 19), a possible area in which this project director might have failed was "in not recognising the need for much fuller consultation with her own colleagues and with some of the parents of the white children." Furthermore, this lack of understanding and acceptance between the project director and her teaching colleagues mitigated against the establishment of the innovation as an on-going part of the school program for the following reasons:

> The reasons given for this were that the informal nature of the activities clashed directly with the assumptions of the teachers as to how classrooms should operate. The activities were seen as not being serious as compared with school work, and children were sometimes not given permission to attend the activities as a punishment or to enable them "to catch up on school work". It was found that improved participation by the Aboriginal children in decision-making in relation to their own lives was the last thing that anybody in the school wanted, the pattern there being of having orders handed down from the top - principal to teachers to children. A program which encouraged individual thinking about decisions was obviously counter to the school ethos. (Brady, 1979, p. 12)

Beck and Goodridge's (1979) augmented evaluation report describes an innovative project in which project personnel recognised fully the importance of communication between the school and parents:

> The problem of communication between parents and the school is evident in most areas but it had become of crucial importance in this small non-Government school in a semi-industrial area on the outskirts of the capital city. The majority of pupils come from homes where only Italian or Yugoslav or a mixed dialect is spoken and where parents tend to be conservative and culture-bound in their attitudes towards school. None of the teachers could speak the languages spoken by these migrant communities. (Beck and Goodridge, 1979, p. 11)

This communication problem was exacerbated by the fact that notes sent home to parents in their own language often failed because many migrant

parents could not read in any language. Moreover, the project director was aware of a certain amount of hostility among parents who feared that many of the ideas and methods being used at the school were unrelated to the learning of essential basic skills. The way that this communication gap was successfully bridged was to use Innovations Program funding to employ a full-time liaison person who was acceptable to and respected by this community, who visited migrant families' homes, and who was available at the school to talk to parents whenever they wished to come.

CONCLUSION

This chapter attempts to assist innovators in giving an account of their own school-level projects by providing examples of how to describe the following seven key characteristics of a project: aims and rationale; setting; origins of project; materials and equipment; student activities; funding; and problems. By giving a description of an innovation based on several of these features (which normally would not entail the use of the specific evaluation techniques discussed in Chapter 3), an innovator can provide worthwhile assistance to others wishing to implement a similar project.

By identifying and describing problem areas associated with a particular innovation, a project director can help other innovators to become aware of and ultimately combat these problems. In the present chapter, five such problems threatening the effective implementation and continuation of innovations were identified by reading augmented evaluation reports. These problems were a sense of isolation, time delays, staff mobility, failure to establish need for an innovation, and poor communication between innovators and other people. It is noteworthy also that Huckins and Bernard (1977) have recognised the importance of effective communication and human relations when conducting an innovation, and that Porter's (1980) survey of 207 people involved in 95 Innovations Program projects in Western Australia confirms that staff mobility was a major factor

inhibiting the implementation of their innovations. Moreover, there is considerable scope for extending this chapter's initial attempt at identifying common problems by conducting a comprehensive survey of how widespread these and other problems are among a larger group of people engaged in innovative projects.

CHAPTER 3: EVALUATION TECHNIQUES

Whereas the previous chapter outlines key features for describing an innovation, this chapter discusses evaluation techniques which can be used to enhance project documentation. Moreover, by employing some of these techniques during a project, an innovator can obtain a valuable information base which can guide the ongoing operation and improvement of an innovation.

This chapter draws on the reports of evaluations of other innovations to provide examples of the use of eight potentially useful evaluation techniques. These techniques are (a) interviews, (b) observation, (c) student diaries, (d) usage rates, (e) expert testimony, (f) discussions at meetings of project personnel, (g) achievement tests and (h) questionnaires (including published instruments, "home-made" instruments, Likert scales, semantic differential, and checklists). Furthermore, because various evaluation techniques will not be equally useful in the evaluation of any innovation, it is important that innovators judiciously select those evaluation techniques most suited to the nature and purposes of their particular projects.

INTERVIEWS

One of the most common sources of evaluative information used in augmented evaluations was interviews conducted with project personnel, students, teachers and others. For example, Groundwater-Smith (1977) tape recorded the answers of the resource teacher, the E.S.L. teacher and the teacher librarian involved in the Centres of Learning project to specific questions such as "Are there any particular satisfactions or complaints which you might like to voice?" Some of the illuminating comments made by the resource teacher in response to this question are given below:

> The centres are located at one end of the building, so that teachers of senior grades more remote from them and who feel some need of surveillance are reluctant to send their children any distance to work by themselves. Also lack of carpeting and acoustic tiles made the area relatively noisy - a factor some teachers found intolerable. Finally, because implementation was not in the hands of the original planners, the whole project could be seen, in one sense, as being an "imposition" on staff. (Groundwater-Smith, 1977, p. 42)

Lange's (undated) augmented evaluation of an open area program involved taped interviews with project teachers. These interviews furnished informative comments including:

- Smaller spaces or withdrawal rooms are necessary for tutorial discussion sessions, taping, television viewing, etc.
- Open Area has a higher noise level and more movement than is evident in more traditional settings.
- Teaching in an open area requires a blend of effective classroom management, and the ability to treat students warmly and humanely in a fairly informal situation.
- All teaching in the open area is 'busy time' - there is a need to respond to student requests, but also to seek out the quiet student who may be needing help. (see Lange, undated, p. 19)

Hogben's (1976) evaluation of a project at a field studies centre also involved interviews, which were conducted by telephone for convenience and to save time. Examples of some of the interesting comments made by teachers included:

- The way it's run beats anything I've ever seen: it's really well run.
- That which is achieved at the camp in terms of knowledge of arid and semi-arid land environment, living within an ecosystem and adapting to that ecosystem, and living as a co-operative unit of humans within harsh conditions, deserves the highest recommendation and praise.
- The atmosphere for social interaction was unsatisfactory and the experience futile from our point of view - either as a social experience, or a geographical field exercise. (Hogben, 1976, p. 7)

An example of an augmented evaluation which made use of student interviews to provide evaluative information is Cassin's (1977) report of a multi-media geography project. For example, these interviews with students revealed that: group discussion and group activities were enjoyed by most students; five or six groups of five in the room at the same time does not interfere with group activity; and students feel they can learn more through the inquiry method.

OBSERVATION

An overview of augmented evaluation reports reveals that, for the large majority of evaluations, the evaluation consultant visited the project site in order to observe the project. For example, Robertson's (1978) evaluation of a multi-media centre project involved a total of nine site visits, and Lange's evaluation of open area programs involved regular half-day site visits in which the evaluation consultant acted as a participant observer. This process of observation of project operation often provided new evaluative information not otherwise available or furnished information which complemented evidence gained by other procedures (e.g., questionnaire survey). While most augmented evaluations employed an unsystematic and unstructured approach to project observation, a number of reports illustrate the potential usefulness of following a more systematic procedure in certain situations.

Teasdale's (1978) evaluation of an innovation for hearing impaired children involved an important component of observation. In particular, because the speech of these children was retarded to varying degrees, observation of facial expressions formed an essential part of Teasdale's evaluation of the students' communication skills. Teasdale described these facial expressions in the following way:

> The whole gamut of human emotion could be seen at various times in the faces of the hearing impaired children: puzzlement, gradual amusement, spontaneous pleasure, anger, offence, misunderstanding, joy, hurt, confusion, excitement, disdain, dislike and so on were readily observed, and acted as a most effective communication means. One child whose speech was particularly retarded showed an exceptional ability to communicate not only through facial expression, but through total body expression. (Teasdale, 1978, pp. 21-22)

Groundwater-Smith's (1977) augmented evaluation of the Centres of Learning project provides an example of the application of systematic procedures for observing and recording several aspects of classroom organisation, communication and behaviour. This type of observation data provided quantitative evidence about the extent of implementation of intended innovative strategies in classroom individualisation. These systematic observations were made by university students working in small groups to measure and record classroom events. Prior to the observation period, these observers were trained using videotapes, and adequate inter-observer reliability was established.

The group of university students observed four different classes on each of three separate occasions. A "dimensional occurrence scale" was used in observing and recording several salient features of classroom behaviour or organisation over intervals of four minutes' duration. For example, the number of minutes within each four-minute interval devoted to each of four classroom grouping practices (whole class, small groups, individual students, individual students plus small groups) was observed and recorded as shown in Table 2. An example of the interpretation of the data in this table is that in the third class (Class 5/2) during the first four-minute observation period approximately three minutes were devoted to whole class activities, while one minute was devoted to small group activities.

TABLE 2. Number of Minutes Spent in Different Grouping Arrangements on Three Four-Minute Occasions in Four Classes (from Groundwater-Smith, 1977)

Class	Occasion	Number of Minutes Spent in Each Grouping Arrangement			
		Whole class	Small groups	Individual students.	Small groups & indiv. students
6/6	First	0	0	0	4
	Second	0	0	0	4
	Third	4	0	0	0
5/3	First	2	2	0	0
	Second	3	0	0	1
	Third	4	0	0	0
5/2	First	3	1	0	0
	Second	4	0	0	0
	Third	2	0	0	2
Craft	First	0	0	0	4
	Second	0	0	0	4
	Third	2	0	0	2

Videotaping was employed as a way of recording observations for later processing in Morison's (1978) augmented evaluation of a motor stimulation project for moderately intellectually handicapped children attending a special school. The project involved students in the use of gross motor equipment (e.g., a building aid climbing pyramid, a box maze, a tunnel crawl), and one of the main outcomes studied in the evaluation was improvement over time in student proficiency in performance of selected activities.

The evaluation consultant visited the school on five occasions to videotape a set of six activities which were performed by each of nine children. The visits were made at two-month intervals and the six activities were net climbing, foam block walking, beam walking, ladder climbing, trampolining and carpet rolling. All performances at each session were video recorded in their entirety using a single, tripod-mounted monochrome camera and natural classroom lighting.

For each of the six activities, each student's videotaped performances on the five different occasions were arranged into random order. A group of expert judges then viewed each student's random sequence of five performances in order to provide their opinions about the ranking of efficiency of performance. These rankings were averaged across judges and across the six activities. This enabled the actual temporal order of performing the set of activities to be compared with the order of average rating of efficiency of performance (as perceived by the experts). Data for each student were subjected to a statistical significance test in order to ascertain whether the student's efficiency of performance (as perceived by expert judges) had improved over the time that video records had been collected. Evidence indicated that, of the nine students, six showed some evidence of improvement in performance over the time of the evaluation study.

STUDENT DIARIES

A simple way of maintaining records of evaluative information is to have students involved in an innovation keep diaries. Blackburn's (undated) augmented evaluation of a project involving expeditions into the semi-wilderness required students to keep diaries which yielded a large amount of interesting and informative details about student perceptions of this project. Examples of some extracts from student diaries are provided below:

This morning we woke up to frozen packs. Layers of ice covered the ground and our boots. Groups 3 and 4's plates and billies were full of ice and their cutlery was stuck in it. After getting everyone up we took photos of Robyn's frozen pants and washer.

The most amazing feature of the gorge was its unspoilt grandeur. Man has not touched it in any way. We, as explorers, had a feeling of being pioneers and remembered Ludwig Leichhardt in his loneliness.

The view could only be described as one of the truly magnificent views that I have ever witnessed and the sight will stay with me all my life. We claimed the record for the largest party to have climbed the peak.

Arcadia enabled many young people to get together and started friendships which will last for many years. The loss of Arcadia is something which should be prevented. As I sit alone on the last night I let my mind roll over the events of the previous nine days and I feel fantastic. Without any doubt these have been the best days of my life. I will remember them for ever. (from Blackburn, undated, pp. 23-29)

USAGE RATES

Usage rates which describe the frequency with which an innovation is utilised can provide telling information about certain kinds of projects. In particular, the success of projects without a captive audience can be judged in part in terms of the numbers and types of clients attracted. This follows from the obvious fact that the beneficial effects purported to result from a project can only be realised if some clients do experience the innovation. Although usage of an innovation is no guarantee that hoped-for benefits will accrue, usage is nonetheless a necessary condition for the success of an innovation.

The Innovations Program project at the Bournda Field Studies Centre provides a good example of a project whose success could be evaluated in part in terms of usage rates. Table 3 shows some of the usage rates included in Boylan's (1977) augmented evaluation report for this project. This table indicates that an appreciable number of school children (2499 in total) visited the Centre during 1976 and Term 1, 1977. Another pattern evident from the table is that, compared with 1976, there was a marked increase in the proportion of primary schools visiting the Centre.

TABLE 3. Usage Rates for the Bournda Field Studies Centre (adapted from Boylan, 1977)

Aspect	Usage Rate	
	All of 1976	Term 1, 1977
Number of visiting primary schools	30	20
Number of visiting secondary schools	27	6
Number of visiting students	1684	815
Mean number of students per school	30	31
Mean duration of visit (in days)	1.4	1.5

Boylan also reported valuable statistics about the localities from which students visiting the Field Studies Centre were drawn. Of the 57 schools visiting the Centre in 1976, 32 were from the local townships of Bega and Tathra and only seven were more than 80 kilometres away from the Centre. Similarly, of the 26 visiting schools in Term 1, 1977, 16 were from either Bega or Tathra and only five were from outside an 80 kilometre radius. This information highlighted the fact that the Centre's facilities were being used by only a relatively small fraction of South Coast schools, and suggested the need for more effective publicity about the Centre's facilities.

Furthermore, observations made by the evaluation consultant and discussions with the teacher in charge of the Centre revealed that the Centre's facilities were being utilised by a broader cross-section of the community than originally anticipated. Boylan notes that:

> Community groups, such as the Boy Scout Association, are making use of the tracking system on weekends, and individual members of the community were using the tracking system during their vacation times. (A case in point is that one member of the Peakhurst High School group had previously camped within the area with her parents on several occasions prior to her visit with the school). Additionally, while the evaluator was at the Field Studies Centre, a film making group from Melbourne arrived to make a full length feature film using the Bournda area as the site for their outdoor film sequences. Other weekend use of the facilities developed through the Conservation Society includes a weekend visit by science trainee teachers from a Sydney-based College of Advanced Education. (Boylan, 1977, p. 34)

In contrast to the Field Studies Project evaluation, Jackson's (1976) evaluation of a toy lending library excluded collection of any usage rates. Yet such statistics could have provided the library's organisers with valuable information about the popularity of various items, the age range of borrowers, frequencies and durations of loans, etc. Such information could have helped to identify future purchasing and advertising needs.

Another example of the way that usage rates provided telling information about a project is contained in Ingle's (1978) augmented evaluation of the Community Reading Centre project for adult and adolescent non-readers. Although the project was successful in attracting adolescent non-readers, only one adult client was attracted despite reasonable publicity. Consequently, the intended aims of the project had no chance of being realised for adult non-readers as this clientele was not reached. This evidence also suggests that adequate need for this project may not have existed when the project was proposed and funded.

EXPERT TESTIMONY

A very valuable source of information about projects can be obtained by seeking the testimony or opinion of selected people with expertise in areas relevant to the innovation. Despite its potential usefulness, however, the great majority of augmented evaluations have neglected this informational source. An example of one evaluation which made use of expert testimony is Fraser and Koop's (1977) study of a project involving development of instructional materials related to the history of mathematics. In fact, some of the instructional historical materials were sent to various experts who were requested to provide their opinions in writing.

A group of five experts - a historian of mathematics, two mathematics educators and two drama critics - provided their views on a play about Thales, an article about conics, or both. Each of the experts was free to comment on any aspect of the material they wished rather than being requested to respond to specific questions. Nevertheless, each expert was specifically requested to provide opinions about the overall efficacy and usefulness of the materials (summative evaluation) and to identify any specific weaknesses which might be improved in any future rewritten versions of the materials (formative evaluation).

The comments made by each expert were listed in full in an appendix in Fraser and Koop's report. For example, the historian of mathematics made the following illuminating comments:

- The play is considered valuable and should be published for school use after modification.
- The assertion that Thales was exactly 60 years old in 540 B.C. is more precise than present historical knowledge permits.
- Greeks of this period did not measure angles in "degrees" as suggested in the play.

In addition to modifications suggested by the above comments, other positive suggestions were to include a few historical notes (disclaimers) with the play so that the reader wouldn't take everything too literally, and to add suggestions about possible discussion and field work which the teacher could conduct after the play had been used.

Some of the salient comments made by the mathematics educators are summarised below:

- The idea of bringing the history of mathematics into the classroom is laudatory.
- The Thales play may be more suitable for use as a follow-up to work on similar triangles than as an introduction to the topic.
- In-service education would be needed before teachers could put the materials to optimum use.

Examples of comments made about the Thales play by the drama critics included:

- The play has a number of positive dramatic qualities including its dialogue, settings and movement.
- The play would be relatively easy to produce.
- There is a lack of parts for girls.

The flavour of the testimony solicited from the historian of mathematics, and the way that this testimony provided much useful guidance for improving the mathematical play, is illustrated in the following excerpt taken from an appendix to Fraser and Koop's report:

> Perhaps the first thing to be mentioned is the dubious nature of the source material... The latest short account of Thales is in the fine Dictionary of Scientific Biography, of which about 13 volumes have so far appeared. Here the dates of Thales are briefly discussed and the best estimates are given as 625 (?) and 547 (?). So the assertion that Thales was 60 in 540 B.C. is too precise (page 1 of play).
>
> Most importantly, some reconsideration of the two applications of similar triangles is in order. If Thales' shadow were a half or a third as long as Thales is high, the pyramid would cast no shadow owing to its shape... As for the distance of the ships being equal

> to a measurable distance along the beach (need to keep both base lines horizontal), a five foot staff of uncertain perpendicularity would be a quite unsuitable basis for any more reliable data than any experienced look-out might reasonably be expected to supply by looking out to sea. At least Thales could stress how important it is to keep the staff vertical.
>
> No Greek ever used "degrees" for measuring angles, so far as any record survives, until well into the Hellenistic Period... And, of course, the suggestion that any scale of angles would need to enter as intermediaries is quite unnecessary (and historically misleading). The natural thing would be mark the scale directly in distances. Needless to say, no precise information survives, as to what methods were used. (see Fraser and Koop, 1977, pp. 70-71)

The testimonies sought from experts by Fraser and Koop were found to support results obtained in the evaluation from other data sources (e.g., questionnaires). But these testimonies also raised several new and important ideas for the project director to consider when redeveloping the materials.

DISCUSSIONS AT MEETINGS OF PROJECT PERSONNEL

A very fruitful but neglected method of obtaining evaluative information about an innovation is to document discussions during meetings involving project personnel. Such meetings could involve either the various people involved in a particular project or a group of project directors involved in distinct projects on a related theme. The essential feature of this relatively unstructured approach is that these meetings act as "brainstorming" sessions in which a wide variety of information can be obtained about a project's major strengths and shortcomings and its unanticipated side effects, and suggestions can be made for its improvement. In particular, matters raised spontaneously by participants may highlight problems they are facing in the implementation of their innovations, provide anecdotal evaluative evidence and stimulate the search for possible solutions. Moreover, this information then becomes available to others contemplating work in a similar area and may warn of possible trouble spots to be avoided in future planning.

Beck and Goodridge (1978) used discussions at a meeting of project directors in their thematic approach to the evaluation of 15 school-based projects exploring community involvement in schools in Western Australia. As part of their evaluation, these workers organised a two-day conference involving the directors of these projects. Experience gained from this conference led Beck and Goodridge (1978, p. iii) to claim that "for project

directors this may well have been the most important part of the study, as it permitted them to evaluate their own projects in the light of the shared experiences and observations of all the participants."

Based on comments made during this two-day conference, Beck and Goodridge were able to assemble a list of positive features that had been found associated with many of the projects dealing with school-community involvement. These included:

- It is beneficial for children to have contact with a variety of adults in addition to their teachers.
- Students need to be and feel less isolated from the community they are going to work and live in.
- When there is a two-way understanding between home and school, both can work in the one direction for the educational benefit of the child. (see Beck and Goodridge, 1978, p. 20)

Discussions of project directors' experiences also lead to the identification of important problems and constraints which were associated with projects attempting closer ties between school and home or school and community. The identification of these problems could provide considerable guidance to others implementing community involvement projects. These problems included:

- Project directors who planned to involve parents during school hours in helping at the school found that the 'thousands of bored housewives' were not there. Relatively few parents were in fact available for any sort of involvement during school hours.
- The presence of additional adults around the school increases the scope for personality clashes. For example, there are no easy procedures for dismissing unwanted and unsuitable volunteers.
- School buildings tend to lack facilities for parents, who thus feel awkward and redundant unless they are actually working in a classroom or library.
- The time and effort spent by a teacher in organising and helping visiting experts can outweigh the benefits gained. (see Beck and Goodridge, 1978, pp. 21-22)

ACHIEVEMENT TESTS

For those innovative projects for which students' cognitive achievement in certain areas is an important aim, it is desirable to use either "home-made" or published tests to assess the extent of achievement. Also it is common in this situation to administer the same cognitive test as a pretest and as a posttest in order to gauge the amount of change in achievement occuring during the time of a project.

Lange's (undated) evaluation of a remedial mathematics project used a published test developed by Elkins, Andrews and Cochrane (1972) to assess changes in mathematics achievement among students involved in the project. This published test measures basic skills in arithmetic, particularly basic operations with whole numbers, fractions, and decimals and the application of these operations to measurement concepts. This test was administered as a pretest in February prior to the commencement of the remedial program and again as a posttest towards the end of the year. Also, in order to permit more meaningful interpretation of findings, these results were compared with those of a control group of students not involved in the remedial program. When Lange performed a number of statistical significance tests on these data sets, it was evident that the remediation program had been successful in promoting cognitive mathematics achievement among students.

An example of the use of a "home-made" achievement test is provided by Fraser and Koop's (1977) augmented evaluation of a project involving development of some history of mathematics materials. In particular, since an important aim of a play about an ancient mathematician was to convey the concept of similar triangles, a test was constructed by the external evaluation consultants to measure understanding of this concept. In order to gauge the effectiveness of the play in promoting understanding of similar triangles, this test was administered to several classes of students prior to using the play and again as a posttest after completion of the play.

The results of State examinations sometimes can be employed as indices of cognitive achievement in the evaluation of certain projects. For example, in his evaluation of a cyclical timetable project, Johnstone (1977) reported an imaginative use of Higher School Certificate results. Although a rise in academic standards was not an aim of this project, an expectation implicit in the introduction of the new timetable was that academic standards would be maintained. Consequently, Johnstone gauged the effect on academic standards of the cyclical timetable project by comparing the results of students presenting for the Higher School Certificate before the organisation had been changed with results two years after the new organisation was implemented. It was found that standards of academic performance at the Higher School Certificate level had been maintained, and that the variation between the results for the two years was very slight.

Similarly Cordwell's (1977) description and evaluation of the Multi-Media Geography Laboratory project involving inquiry approaches made use of results awarded by the Board of Secondary School Studies. In fact, Cordwell provided

a table showing the percentage frequency of seven levels of results for Year 10 Geography at the project school in the year prior to the innovation, in the year of introduction of the innovation, and during two successive years when the innovation was in full swing. These results showed that there had been a greater frequency of higher achievement levels during the later two years, thus suggesting that the innovation in geography education was having an advantageous effect on student achievement.

QUESTIONNAIRES

One of the most frequently employed methods of collecting information in augmented evaluations was the use of questionnaires. Moreover, augmented evaluation reports provide numerous worthwhile examples of how a variety of different types of questionnaires have been used to advantage in the evaluation of innovation. In this section, questionnaires are discussed using the headings of published instruments, "home-made" questionnaires, Likert scales, semantic differential, and checklists.

Published Instruments

Relatively few augmented evaluation reports made use of published questionnaires. One reason likely for this is that some widely used published instruments would not be applicable because of the unique nature and purposes of Innovations Program projects. Practical impediments to the use of published tests are that project directors and evaluation consultants simply were unaware of the range of available tests or that time constraints meant that it was not possible to wait until tests could be ordered and despatched from an interstate or overseas publisher.

Searle and Parmenter's (1978) evaluation of a work preparation program for mildly intellectually handicapped children employed several published instruments to assess relevant student outcomes. Halpern, Raffeld, Irvin and Link's (1975) Social and Prevocational Information Battery (SPIB) supplemented school-developed measures of social competence and provided additional valuable information about students' knowledge of aspects of social and prevocational skills. The Burke and Sellin (1972) Self Concept of Ability as a Worker Scale was administered at the end of the program both to students involved in the project and a comparison group from a slow learners' class at a nearby high school. Payne, Mercer and Epstein's (1974) published personal/vocational checklist was also used to obtain ratings of the same students as expressed by teachers, employers and the students themselves. The 25 items in this test are answered on a five-point scale

with the responses of Very Poor, Poor, Just Fair, Good and Very Good. Examples of some of the items in this personal/vocational checklist are given below:

- How well do you get along with other workers?
- Are you at work on time?
- How clean and neat are you?
- Do you think of safety when you are working?
- Can you work without being supervised all the time?
- How well do you count?
- How well do you write?
- How well do you handle your money?

Possibly the most interesting result emerging from the analysis of responses to this questionnaire was that opinions about students were more conservative among teachers and employers than among parents and the students themselves.

Groundwater-Smith (1977) also used a published questionnaire in her evaluation of a project involving several centres of learning. This questionnaire was developed by Coppersmith and contains 58 items measuring student self-esteem. Each item is responded to by students on a two-point scale with responses of Like Me and Unlike Me. Examples of some of the items in this published instrument are:

- I'm pretty sure of myself.
- I'm a lot of fun to be with.
- I would rather play with children younger than me.
- It's pretty tough to be me.
- Things are all mixed up in my life.
- I'm not as nice looking as most people.
- I'm a failure.

"Home-Made" Instruments

Questionnaires developed especially for the purpose were used extensively in augmented evaluations as sources of information. Whereas some questionnaires sought a fixed response (e.g., Yes/No) to specific questions, others provided space for open-ended answers to more general questions. Lehman's (1978a) augmented evaluation of a module system of studies made use of very detailed questionnaires to obtain evaluative information from students, teachers, parents and the project director. For example, one of Lehman's open-ended questions to parents was: "Please explain any differences you know that exist between the present Year 7/8 programs at Richmond River High School and the way these programs used to be." An example of a fixed-response question (Yes/No/Don't Know) on the student questionnaire was: "Are you getting enough time to study, to understand, and to complete each activity you undertake?" One of the open-ended questions included in Lehman's

teacher questionnaire was: "Please provide specific details of difficulties and problems you believe are evident when teaching your subject because of the module system."

Howard's (1977) augmented evaluation of a science resource materials development project included an open-ended questionnaire which sought information from the teachers directly involved in materials development. Some of the items included in this questionnaire are listed below:

- Did your participation cause any difficulties?
- What additional facilities or back-up services would you like in future similar projects?
- What skills did you acquire as a result of participation?
- What advice could you pass on to anyone wishing to participate in a similar project?
- What reactions in your colleagues at work did your participation cause?

Johnstone's (1977) evaluation of a cyclical timetable project provides some colourful examples of how students' replies to open-ended questionnaire items can add interest to an evaluation report. For instance, some of the replies received from Year 9 students in response to a questionnaire item about the most preferred activities engaged in are listed below:

"Cooking is best because you can eat the food you cook."

"Leatherwork is best because I finished the work I started and it looked like it was supposed to - not like my pottery did."

"Kayaking is best because you could swim and paddle around without teachers saying to do this, do that, blah, blah, blah."

Similarly, responses to another open-ended question dealing with student attitudes to forced activities revealed several dissatisfactions:

"Some of the activities we have been made to do are totally boring unless you have a rather unique interest in them."

"I've already got two Star bars in lifesaving and I'm just doing everything over and over again."

Likert Scales

One of the most widely used approaches to attitude measurement in educational research today is the method proposed many years ago by Likert (1932). Table 4 shows an example of a Likert-type attitude questionnaire used in an augmented evaluation study (Fraser and Koop, 1977). The project being evaluated involved the use of motivational materials related to the history of mathematics, and the questionnaire in Table 4 was used to measure the attitudes of a group of Year 9 students using a mathematical play (which was about the life of the ancient mathematician Thales). In fact, this questionnaire was administered as a pretest prior to students studying the Thales play and again as a posttest after the completion of the play.

TABLE 4. An Example of an Attitude Questionnaire with Likert-Type Items (from Fraser and Koop, 1977)

1. I like mathematics lessons more than any other lessons. (+)	SA	A	N	D	SD
2. It would be a waste of time learning about the lives of mathematicians who lived thousands of years ago. (-)	SA	A	N	D	SD
3. I like to try to solve mathematical puzzles and problems. (+)	SA	A	N	D	SD
4. I think mathematics is a dull and uninteresting subject. (-)	SA	A	N	D	SD
5. Outside the classroom, I don't like to think about mathematics. (-)	SA	A	N	D	SD
6. I like to make up sums and problems and do them at home. (+)	SA	A	N	D	SD
7. Learning about the history of mathematics would be interesting. (+)	SA	A	N	D	SD
8. I don't like mathematics because the examples are too hard and make me think. (-)	SA	A	N	D	SD
9. Mathematics is one of the most interesting subjects, and I want to do as much mathematics as possible. (+)	SA	A	N	D	SD
10. Mathematics has few practical applications to daily life. (-)	SA	A	N	D	SD
11. Mathematics is a most important subject and more time should be given to it at school. (+)	SA	A	N	D	SD
12. I dislike mathematics and will do as little mathematics as possible at school. (-)	SA	A	N	D	SD
13. I would enjoy mathematics lessons more if they included some plays related to mathematics. (+)	SA	A	N	D	SD
14. Mathematics is a difficult subject which I don't enjoy. (-)	SA	A	N	D	SD

Items designated (+) are scored 5, 4, 3, 2, 1 for the responses Strongly Agree (SA), Agree (A), Not Sure (N), Disagree (D), Strongly Disagree (SD). Items designated (-) are scored in the reverse manner. Omitted or invalidly answered items are given a neutral score of 3.

As items 2, 7, 10 and 13 measure specific attitudes, scores on these items cannot be summed to form a meaningful total. Scores on the other 10 items can be summed to form a general attitude to mathematics score.

It can be seen from Table 4 that the essential feature of a Likert item is that it involves respondents in indicating their degree of agreement about various statements. In fact, the items in this questionnaire have a five-point response format, with the alternatives of Strongly Agree (SA), Agree (A), Not Sure (N), Disagree (D) and Strongly Disagree (SD). Item 1 (and other items designated "+") are scored by allotting five marks for the Strongly Agree response, four marks for the Agree response, ..., and one mark for the Strongly Disagree response. Furthermore, in order to avoid response set, half of the items are worded in such a way that the reverse scoring procedure is required (see items designated "-").

A particularly noteworthy feature of the questionnaire in Table 4 is that attitude items fall into two distinct groups. The first group, namely Items 2, 7, 10 and 13, were written by the evaluators to measure four specific pupil attitudes which could change during the time of use of the play. The four specific attitudes are attitude to learning about the lives of ancient mathematicians (Item 2), attitude to learning about the history of mathematics (Item 7), attitude to the practical applications of mathematics in daily life (Item 10), and attitude to including mathematical plays in mathematics lessons (Item 13). Scores on these four attitude items were not combined to form a meaningful total score but, instead, were used as four distinct attitudinal criteria. The second group of attitude items comprise a 10-item attitude to mathematics scale developed by Keeves (1974). A student's total score is obtained by summing scores obtained for Items 1, 3, 4, 5, 6, 8, 9, 11, 12 and 14.

The reason for using Keeves' attitude scale in the evaluation was not that it was thought that pupils would undergo appreciable changes in general attitude to mathematics during the use of a single play. Rather, it was used to provide information about whether the effectiveness of the play was different for pupils of differing attitudes towards mathematics. Because of the purposes to which the attitude to mathematics data were put, a single measure of this attitude at one instance in time would have sufficed. The attitude to mathematics items, however, were administered at pretesting and posttesting for two reasons. Firstly, it proved convenient because it reduced the costs involved in printing two separate questionnaires and because it simplified teachers' instructions for administration by having identical questionnaires on the two occasions.

Secondly, the intention of the four items measuring specific attitudes relevant to the play was made a little less obvious to pupils by interspersing these items with the 10 items measuring general attitude to mathematics.

When pretest and posttest scores were compared for the four items measuring specific attitudes, it was found that statistically significant changes had occurred for Items 7 and 13 but not for Items 2 and 10. That is, small and nonsignificant changes occurred during the use of the Thales play in attitude to the statement that it would be a waste of time learning about the lives of ancient mathematicians and to the statement that mathematics has few practical applications to daily life. On the other hand, a significant improvement in attitude was found towards the statement that learning about the history of mathematics would be interesting and towards using mathematical plays in mathematics lessons.

Likert-type items were also used to measure student attitudes in augmented evaluations of an integrated social science project (Lehman, 1978b) and an environmental education project (Blackburn, undated). In Lehman's evaluation, students replied on a five-point scale to statements such as "The study of geography is ..." (with responses ranging from Always Interesting to Never Interesting) and "Tolerating people who are different to me because they speak a different language is ..." (with responses ranging from Always Very Difficult to Never Very Difficult). In Blackburn's evaluation, students responded on a five-point scale (ranging from Very Much Like Me to Not At All Like Me) to self-concept questions such as "Finds native flora rather drab and uninteresting", "Likes to go exploring for aboriginal cave paintings and burial sites" and "Believes the dingo is a pest which should be shot out". Furthermore, by administering the same self-concept questionnaire both as a pretest prior to when students went on expeditions to the semi-wilderness and again as a posttest afterwards, Blackburn was able to detect numerous areas in which favourable and statistically significant attitude changes had occurred.

Semantic Differential

Another widely used approach to the measurement of attitudes is the semantic differential technique developed by Osgood, Suci and Tannenbaum (1957). Table 5 contains a simplified version of the semantic differential scale used by Boylan (1977) in his augmented evaluation of a project at Bournda Field Studies Centre. This table shows that students were asked to provide their attitudes towards the concept of "Field Studies Centre" by describing the

concept in terms of several adjective pairs (e.g., good-bad). Each adjective pair is rated on a seven-point graphical scale by placing a tick in the appropriate location along the line.

TABLE 5. Semantic Differential Scale for Measuring Attitudes Related to a Field Studies Centre Project (from Boylan, 1977)

The Field Studies Centre is:-		
good	: : : : : :	bad
beautiful	: : : : : :	ugly
dishonest	: : : : : :	honest[a]
worthless	: : : : : :	valuable[a]
necessary	: : : : : :	unnecessary
unimportant	: : : : : :	important

[a] For these items, a tick at the extreme left of the continuum is scored 1 and a tick at the extreme right is scored 7. Other items are scored in the reverse manner.

The scoring of this semantic differential scale is similar in several ways to the scoring of the Likert scale discussed in the previous section. First, in order to avoid response set, some items are given the maximum score of seven for placing a tick at the extreme left of the continuum while other items are given the maximum score for placing a tick at the extreme right. Second, it is possible to consider scores on individual adjective pairs, or to sum the scores for all items in Table 5 to obtain a meaningful total score.

Boylan used a number of semantic differential scales to study the effect on student attitudes of the experience of visiting the Bournda Field Studies Centre. In fact, a separate semantic differential scale was used to assess student attitude towards the six concepts of "pollution", "the study of ecology", "man's use of the environment", "conservation", "the natural environment" and "the Field Studies Centre". A group of 72 students from two high schools and one primary school responded to the semantic differential scale both before and after visiting the Centre in order to provide measures of attitude change. Also a control group of 55 students (from one high school and one primary school) did not visit the Centre but still provided their responses to the semantic differential scales on one occasion in order to permit a comparison of the attitudes of non-visitors to the Centre with the attitudes of visitors.

TABLE 6. Social Competence Checklist for Mildly Intellectually Handicapped Students (adapted from Searle and Parmenter, 1978)

General Area	Specific Skill	Teacher Check
Knowledge of self, home and family	Knows and can tell name	
	Knows address	
	Can write telephone number	
Self-help skills	Can tie shoes	
	Can brush and comb hair	
Communicative skills	Can use public telephone	
	Calls adults by Mr and Mrs	
	Can follow simple instructions	
Knowledge of school and local community	Knows location of specific classrooms	
	Can use train and bus timetables	
	Can go shopping	
Safety	Can cross roads safely	
	Can recognise traffic and safety signs	
	Can tell what to do if lost	
Occupational skills	Is punctual	
	Attends regularly	
	Cooperates	
Knowledge of rights as an employee	Knows about sick pay	
	Knows about workers' compensation	
	Knows about superannuation	

A series of significance tests revealed a number of statistically significant differences for the total evaluation scale score and, in each case, the direction of these differences supported the efficacy of the Field Studies Centre project. For example, evidence suggested that visiting students' attitudes towards man's use of the environment and towards conservation were more favourable than the attitudes of non-visiting students.

Checklists

A convenient way of obtaining information about student knowledge, competence and skills is to use a checklist. Table 6 shows an example of a simple checklist adapted from Searle and Parmenter's (1978) evaluation report for a work preparation program for mildly intellectually handicapped children. As the aims of this program include the development of social and vocational competence, the checklist shown in Table 1 could be filled in with ticks by the teacher in order to provide a record of student progress towards developing competence in seven areas (namely, knowledge of self, home and family, self-help skills, communicative skills, knowledge of school and local community, safety, occupational skills, and knowledge of rights as an employee).

CONCLUSION

This chapter discusses eight specific evaluation techniques useful for enhancing the description of an innovation and for providing an innovator with formative evaluative information on which to base decisions about program improvement. The techniques considered are interviews, observation, student diaries, usage rates, expert testimony, discussions at meetings of project personnel, achievement tests, and questionnaires. Furthermore, it should be emphasised that usually it is desirable to employ several different techniques within the same evaluation. The advantages of using multiple evaluation techniques are that the information base is made larger and because the consistency of information obtained through use of different techniques may be checked.

CHAPTER 4: CONCLUSION

The purpose of this final chapter is to provide further assistance to innovators in the task of evaluating and documenting their innovative efforts. This purpose is achieved in four ways. First, the material in previous chapters of the monograph is summarised and amplified. Second, it is suggested that further guidance can be obtained by consulting some of the complete augmented evaluation reports which have formed the basis of the extracts reported throughout this monograph. Third, some of the theoretical evaluation literature which might guide the evaluation activities of innovators is briefly reviewed. Fourth, the potential merits of seeking assistance from colleagues when conducting an evaluation are outlined.

DISCUSSION OF PREVIOUS CHAPTERS

The central purpose of Chapters 2 and 3 is to provide practical help to innovators attempting to evaluate and give an account of their school-level projects. In fact, the primary audience for this monograph is present and prospective innovators, whether funded by the Innovations Program or not, who want guidance in evaluating and documenting their projects. Furthermore, although examples have been drawn throughout the monograph from reports of augmented evaluations of Innovations Program projects conducted with the assistance of an external consultant, the central thrust in this document is to provide assistance for innovators responsible for evaluating their own projects. Secondary audiences which might also find the present monograph useful are Innovations Program counsellors who could be asked by grantees to advise on project evaluation, and various preservice and inservice educators interested in upgrading the practical skills of trainee or experienced teachers in the important task of evaluating educational programs.

In Chapter 2: Describing an Innovation, examples are given of the way in which other innovations have been described in terms of certain key features (e.g., aims, setting, material). These features of an innovation normally can be described by a project director even if no specific evaluation techniques have been used throughout the time of the project.

Also a description of these aspects of an innovation provides a very useful basis for the dissemination of ideas to others who might be interested in attempting a similar innovation. Chapter 3: Evaluation Techniques represents an extension to Chapter 2 because it provides illustrations of specific evaluation techniques (e.g., interviews, questionnaires) which can be used throughout an innovation for two reasons. First, the description of an innovation can be enhanced considerably if it includes evaluative information collected during the life of the innovation. Second, by collecting information via these techniques during an innovation's life, an innovator is provided with formative evaluative information which can be used to guide important decisions about project revision.

Table 7 is a summary of the major headings contained in Chapters 2 and 3. That is, this table provides a checklist of seven key features (namely, aims and rationale, setting, ..., problems) which could be considered when describing an innovation and of eight potentially useful evaluation techniques (interviews, observation, ..., questionnaires) which might be used to advantage to collect evaluative information during a project.

It should be emphasised, however, that Table 7 does not provide a "recipe" for documenting and evaluating any innovation. As the Schools Commission (1975b, p. 4) correctly notes, "the kinds of information which are most useful will vary according to the nature and aims of the project." Consequently, Table 7 should be considered simply as an array from which an innovator might choose several features for describing a project and several evaluation techniques suitable for the particular project being considered. The reason for assembling the material in Table 7 as a convenient checklist is so that an innovator might profitably refer to it at regular intervals throughout the life of a project.

Although each evaluation technique is discussed separately in Chapter 3, it is usually desirable to employ more than one technique in any particular evaluation. This combining of evaluation techniques can provide a broader range of evaluative information, enable checking of the consistency of data from different sources, and help to reduce evaluator bias. Furthermore, although curriculum evaluation writers are divided about whether quantitative or qualitative evaluative information is preferable, there can be real advantages in combining some of the quantitative approaches (e.g., questionnaires) and qualitative approaches (e.g., student diaries) described in Chapter 3 in order to provide a more useful information base (see Smith and Fraser, in press).

TABLE 7. A Checklist of Features for Describing an Innovation and Evaluation Techniques

FEATURES FOR DESCRIBING AN INNOVATION

- AIMS AND RATIONALE
- SETTING
- ORIGINS OF PROJECT
- MATERIALS AND EQUIPMENT
- STUDENT ACTIVITIES
- FUNDING
- PROBLEMS
  - Feelings of isolation
  - Time delays
  - Staff mobility
  - Failure to establish need for innovation
  - Ineffective communication between innovators and others

EVALUATION TECHNIQUES

- INTERVIEWS
- OBSERVATION
- STUDENT DIARIES
- USAGE RATES
- EXPERT TESTIMONY
- DISCUSSIONS AT MEETINGS OF PROJECT PERSONNEL
- ACHIEVEMENT TESTS
- QUESTIONNAIRES
  - Published instruments
  - "Home-made" instruments
  - Likert scales
  - Semantic differential
  - Checklists

Just as it is important to use a variety of techniques for obtaining evaluative information, so too is it critical in an evaluation to seek the opinions of a variety of different people (e.g., project personnel, teaching colleagues, the school principal, students, parents). In fact, Hardy's (1979) augmented evaluation of a community counsellor project revealed that, among various people consulted, "there was a marked divergence of interpretation of what had occurred and what was occurring" (p. 99). It is for this reason that Stake (1976) has recommended that differing value perspectives present be referred to when reporting the evaluation of any project.

FURTHER GUIDANCE FROM AUGMENTED EVALUATION REPORTS

Chapters 2 and 3 of this report have drawn heavily on material contained in augmented evaluation reports to illustrate how to describe innovative projects and to suggest some useful techniques which can be employed in evaluating innovations. Although the examples contained in these chapters are necessarily brief, the reader is urged to seek fuller details by consulting some of the complete augmented evaluation reports, which are obtainable from the Education Information Retrieval System (E.I.R.S.).*

As well as providing amplification of issues discussed in Chapters 2 and 3, the complete augmented evaluation reports can also be referred to for clarification of many other important issues and problems which can arise when conducting an evaluation. For example, complete evaluation reports provide guidance in ways of analysing evaluative information and ways of organising and presenting an evaluation report. For example, Jones's (undated) augmented evaluation report of a remedial mathematics program illustrates how a variety of information can be brought together in an interesting and revealing way as student case studies. These case studies for individual students involved a two-page description based on the results of diagnostic tests and interviews conducted with the student and the class teacher. Different augmented evaluation reports also provide examples of the use of different writing styles (e.g., academic, colloquial) in reporting an evaluation, and illustrate the use of tables, diagrams or photographs in making communication more effective.

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*The address of E.I.R.S. is Wattle Park Teachers Centre, 424 Kensington Road, Wattle Park, South Australia 5066.

EVALUATION LITERATURE FOR BUSY INNOVATORS

A major strength of the present monograph is that it provides practical assistance with evaluation by concentrating on concrete examples of useful approaches and techniques followed in the evaluation of other recent school-level projects. Although this very practical orientation is laudatory, further guidance in the task of evaluating innovations can be found in the host of potentially useful evaluation ideas and models contained in the theoretical literature of curriculum evaluation. Consequently, those interested in conducting and reporting a thorough evaluation of their innovations might wish to use this practically-oriented monograph in conjunction with more theoretically-oriented literature.

Because the great majority of innovators are busy people with little knowledge and experience in evaluation, they are likely to need assistance if they are to make effective use of literature in evaluating their projects. This is especially true because the curriculum evaluation literature is voluminous and widely scattered, and because it reflects great diversity of opinion about desirable evaluation approaches. Moreover, because of the idiosyncratic nature of each innovation, there can be no evaluation "recipe" which would be appropriate for all projects. Consequently, what is needed by busy innovators is a relatively brief overview of a wide range of evaluation ideas and methods, so that innovators can identify literature pertinent to their own situations and purposes and follow it up in more detail. In fact, an annotated bibliography of curriculum evaluation literature (Fraser and Houghton, 1982), which provides a one-page abstract of over 100 curriculum evaluation references, currently is available to provide busy people with a brief overview of a wide range of theoretical evaluation literature.

An attempt to identify and review a representative sample of references from the theoretical curriculum evaluation literature is outside the scope and purposes of the present monograph. Nevertheless, it may be of assistance to readers to list here a handful of potentially useful references. Straton (1975) and Wines et al (1975) have written papers specifically on the evaluation of innovations, while Steadman (1976) offers an informative chapter on techniques of evaluation. Owens and Evans (1977), Fensham (1980) and Groundwater-Smith and Nicoll (1980b) have published straightforward booklets for those wishing to improve their evaluation skills, while the Curriculum Development Centre has provided a monograph which gives a good overview of the major theoretical writings and ideas in the field of curriculum evaluation. Among the more useful general textbooks devoted to

evaluation are Taylor and Cowley (1972), Weiss (1972), Worthen and Sanders (1973), Stake (1975), Stenhouse (1975, ch. 8), Hamilton et al (1977), Anderson and Ball (1978) and Guba (1979). Also, the Teachers as Evaluators Project (1978-80) has produced a four-part bibliography of materials and references on program evaluation for teachers.

Scheyer has proposed a relatively simple approach which innovators might apply in collecting their own evaluative information on their own projects (Scheyer, 1975-76; Scheyer and Stake (1976). This approach involves people keeping self-evaluation portfolios which are described in the following way:

> The idea is to establish a file or collection of records and materials which broadly represent the program. This portfolio should be a loose collection so that parts of it can be rearranged and differently displayed from time to time. The entries should reflect the program activities, its issues, its valuings, and its compromises. (Scheyer and Stake, 1976, p. 37)

Things which might be included in a portfolio are handouts, minutes of meetings, photographs, audiotapes, examples of children's work, records of observations, anecdotes, verbatim quotations, transcripts of dialogues, etc. In particular, a self-evaluation portfolio should reflect the valuings, judgements and opinions of various persons involved in the program because diverse testimonies on important evaluation issues reveal the different perceptions that people have about what the strengths and weaknesses of the program are. Furthermore, the experience of portfolio keeping helps to train project staff in a self-evaluation strategy which endures beyond the lifetime of the project.

A number of augmented evaluation reports can be referred to for clarification of the way that theoretical evaluation literature might be employed to advantage in conceptualizing, planning or reporting the evaluation of an innovation. In particular, the paragraphs below describe the use of theoretical evaluation models in augmented evaluation reports, including Ingle's (1978) use of Stake's (1967) countenance model and Searle and Parmenter's (1978) application of a systems evaluation model based on the ideas of Schulberg and Baker (1968), Budde (1972) and Mitchell (1975).

Stake's (1967) countenance model is composed of two dimensions. The first dimension consists of antecedents (which embrace goals and materials), transactions (which involve student activities) and outcomes (both student outcomes and outcomes on other people). The second dimension - which

consists of intents, observations, standards and judgements - highlights Stake's claim that there is more to the evaluator's task than recording observations of a variety of relevant aspects related to antecedents, transactions and outcomes. As well the evaluator should consider the intents (e.g., planned-for environmental conditions and student achievements), the standards or ratings considered meritorious by different reference groups, and judgements (i.e., the evaluator should record his judgements by assigning weights to each set of standards).

Ingle's (1978) augmented evaluation report for the "Community Reading Centre" project used Stake's countenance model at the planning stage to ensure that antecedents, transactions and outcomes were adequately represented in the information collection plan. Table 8 shows the information sources contained in Ingle's evaluation plan and classifies these information sources into antecedents, transactions and outcomes. This table shows that examples of antecedents include physical plant and teacher characteristics, examples of transactions include time allocation and sequence of events, and examples of outcomes include student achievement and attitudes and effects on teachers.

TABLE 8. Information Sources for Evaluation of a Community Reading Centre Project Classified as Antecedents, Transactions or Outcomes (from Ingle, 1978).

Stake's (1967) Category	Information Source
Antecedents	Student characteristics
	Teacher characteristics
	Curricular content
	Curricular context
	Instructional materials
	Physical plant
	School organization
	Community context
Transactions	Communication flow
	Time allocation
	Sequence of events
	Reinforcement schedule
	Social climate
Outcomes	Student achievement
	Student attitudes
	Student motor skills
	Effects on teachers
	Institutional effects

Figure 5 shows how a systems evaluation model was applied in the evaluation of an innovative work experience project for mildly intellectually handicapped children (see Searle and Parmenter, 1978; Parmenter and Fraser, 1980). This figure shows that the essential elements of the systems approach are inputs, which usually lead to a statement of a problem, process, which is an attempt at solutions to a problem, and outputs, which are the results obtained. The model also incorporates an information feedback loop which may lead to program adaptation.

The main reason for adopting a systems approach in this evaluation was so that, in addition to a documentation of the final outcomes, there also was an analysis of the total dynamics of the program. Thus it was hoped that other schools might be able to get a clearer picture of all aspects of the organisation and execution of the work experience program. One of the essential strengths of a systems approach is that it gives an opportunity for both on-going or process evaluation and output or product evaluation to be conducted. Consequently an organisation conducting a similar program might find answers to questions about whether the goals of the program are being achieved, whether there is an effective coordination of the organisational sub-units, whether the necessary resources are being acquired and maintained, and whether the organisation is adapting to its environment and its own internal demands.

Figure 5 shows that the inputs for the evaluation included the population served and its needs, together with the situational variables of community, school, economic climate and parents. Population characteristics included in the evaluation were I.Q., vocational test results and recommendations, academic and social attainments, and teacher ratings of social and emotional adjustment. The school's characteristics and its value system were described, particularly the baseline conditions which operated prior to the implementation of the innovative program. Also the evaluation report listed the corporate goals and attitudes held towards the students by various sections of the community (e.g., employers, government agencies, regional offices of education).

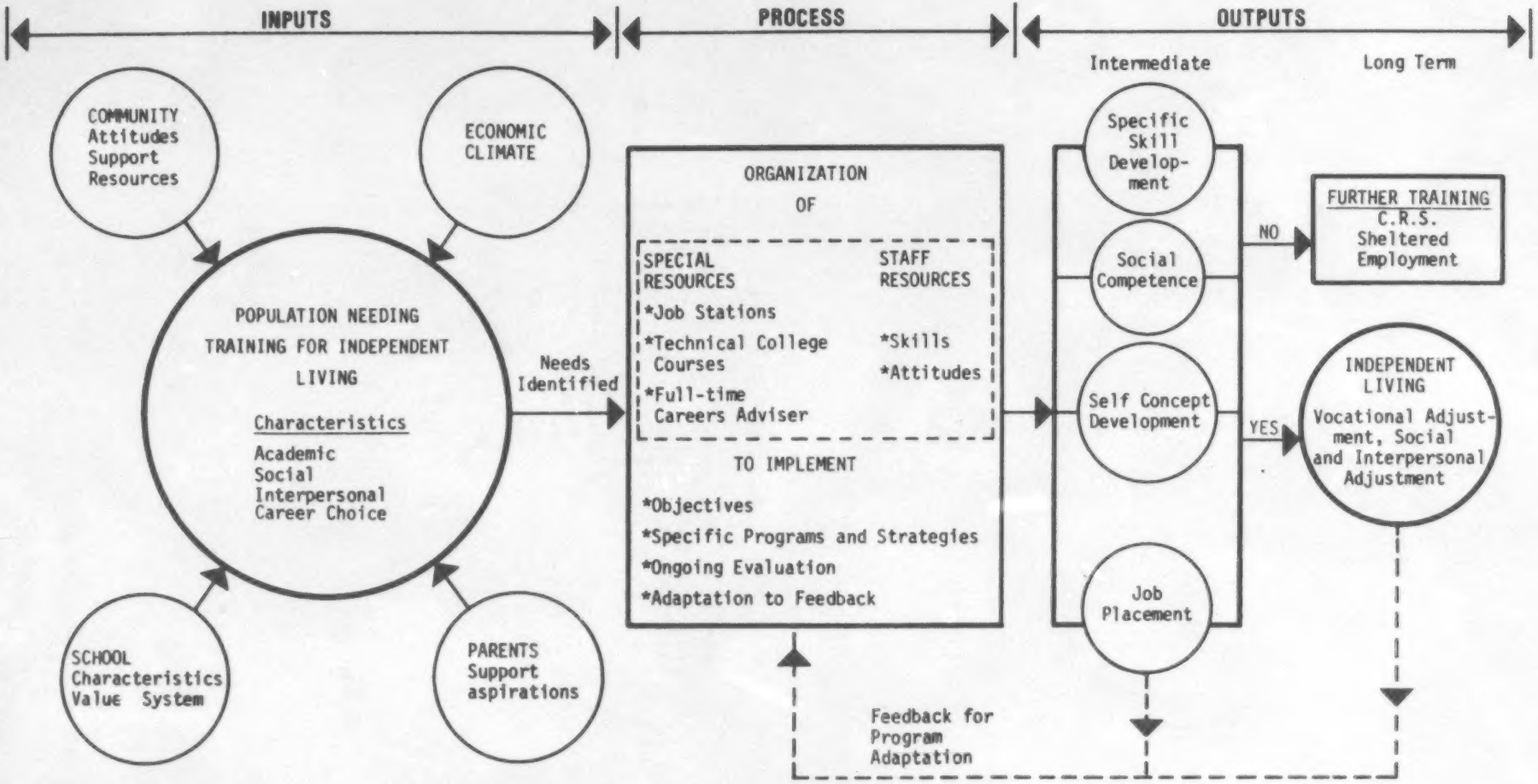

FIGURE 5. A Systems Model for Evaluation of a Work Experience Program (taken from Parmenter and Roberts, 1979, and used in augmented evaluation conducted by Searle and Parmenter, 1978)

Whereas inputs in the model in Figure 5 may be seen as the statement of a problem to be solved (i.e., given this population and its vocational and social needs, how may we best meet them?), the process should be attempts at a solution. Here were stated (and quantified wherever appropriate and possible) the program's objectives, the strategies adopted, the resources made available, and the dynamics of the system. These are primary independent variables that can be subject to experimental management and hence are crucial to feasibility and transportability decisions for similar programs in other settings. Objectives were stated wherever practicable in operational terms of what a student would learn in the various areas of activity (prevocational, vocational and technical). Techniques and strategies employed were identified (e.g., teaching procedures, special programs, group organization). Resources were identified including additional staff facilities (e.g., technical education), community involvement and equipment. Also, the dynamics of the organization of the process variables were monitored and described. Of particular relevance was the response of the organization to feedback from the ongoing evaluation of outcomes.

Figure 5 shows that the outputs considered in the evaluation may be divided into intermediate and long term, and that altogether five main areas of outputs were studied (specific skills, social competence, self concept, independent living and job placement). The first area of outputs considered was specific skill development. Teachers were encouraged to develop on-going assessments for each of the students, and particular attention was paid to the success or otherwise of various sections of the work. Social competence, as measured by school-developed and published instruments, provided a second area of outputs for study. The third outputs area studied was self development as measured by the Burke and Sellin (1972) Self Concept of Ability as a Worker Scale.

ASSISTANCE WITH EVALUATION FROM OTHERS

The Schools Commission's (1975b) guidelines for evaluation urged innovators to enlist the assistance of a colleague or friend when planning and conducting an evaluation. Particular merits of seeking assistance from others are that project directors could be too close to the day-to-day conduct of a project to take an objective view or to obtain frank opinions from others involved. Nevertheless, despite the potential benefits of enlisting the assistance of others, Edwards' (1980) review of final reports

of projects funded by the Innovations Program in N.S.W. reveals that only a very small fraction of grantees had sought any assistance from others. Despite this, Edwards' questionnaire survey of a sample of grantees indicated that the type of help with evaluation most wanted was face-to-face contact with people with experience in evaluation.

In addition to the guidance with practical aspects afforded by the present report, innovators might gain additional help with the evaluation of their project by enlisting the help of others. People from whom assistance could be sought include teaching colleagues, people from other schools interested in similar innovations, or people from universities and colleges with experience in program evaluation. For those innovators funded by the Innovations Program, it also is possible to enlist the assistance of Program counsellors, some of whom have particular experience in the area of project evaluation.

Augmented evaluation reports provide good examples of the way that innovators worked in close liaison with external people experienced in evaluation. Moreover, these augmented evaluation reports suggest some tentative guidelines for ways of optimizing the effectiveness and usefulness of assistance with evaluation from others. For example, the fact that the effectiveness of some evaluations (e.g., Boylan, 1977; Howard, 1977; Ingle, 1978) was impeded by the large distance between the innovator's location and the location of the person assisting with evaluation suggests the desirability of innovators seeking help with evaluation from people located at a small enough distance to allow regular face-to-face contact. Other augmented evaluation reports (e.g., Lehman, 1978b; Searle and Parmenter, 1978), by revealing that important evaluative information can be missed if assistance with evaluation comes too late in the life of a project, underlines the importance of seeking help with evaluation near the commencement of a project. Cassin's (1977) finding that students were unwilling to make negative comments about an innovation to project personnel reinforces the notion that enlisting the help of external people could result in the acquisition of more frank opinions about a project.

DISCUSSION

In his discussion of the evaluation of innovations, Straton (1975) makes the following claim:

> Where evaluation studies of innovative educational programmes are planned, there is a need for sensitivity to the particular project and its setting, ... a need for flexibility and originality in the procedures for data collection, a need for a balanced description taking account of all types of information and a need to accommodate the rights of all audiences of the programme. Given the fulfilment of these needs, evaluation studies have an immense potential for helping to improve the quality of Australian education by providing information about innovative educational programmes which is useful for fully describing the programme and for making informed judgments and decisions. (Straton, 1975, p. 14)

The primary purpose of the present monograph is t assist innovators in their efforts in the important task of documenting and evaluating their innovations. To this end, Chapter 2 identifies key features for describing an innovation, Chapter 3 discusses evaluation techniques which can be used to enhance project documentation and to provide ongoing feedback which can lead to project improvement, and the present chapter suggests how further guidance might be obtained either from the theoretical evaluation literature or by seeking the assistance of other people. It is hoped that, through innovators' use of this monograph, the evaluation and reporting of innovations might be enhanced so that, ultimately, the improvements in the quality of Australian education suggested by Straton might be realised.

BIBLIOGRAPHY OF AUGMENTED EVALUATION REPORTS

This bibliography lists, in alphabetical order of the names of authors of evaluation reports, all augmented evaluation reports cited throughout this monograph. Copies of complete augmented evaluation reports can be requested from the Education Information Retrieval System, Wattle Park Teachers Centre, 424 Kensington Road, Wattle Park, S.A. 5066, Australia.

BIBLIOGRAPHY OF AUGMENTED EVALUATION REPORTS

AUGMENTED EVALUATION REPORT			PROJECT		
AUTHOR	TITLE	DATE	GRANTEE	TITLE	FILE NO.
Beck, T.M. & Goodridge, C.G.	Community Involvement in Schools. (A review of fifteen school-based projects funded in Western Australia)	1978	(This covers 15 projects in W.A.)		
Blackburn, A.J.	An Augmented Evaluation of Three Environmental Education Projects	undated	Simson, R.P.	Environmental Education Program "Project ARCADIA"	74/750
			Groom, W.A.	Binna-Burra Environmental Study Centre	74/4895
			Corfield, N.J.	Yeronga State High School Environmental Area	74/2212
Boylan, C.	Evaluation Report: Bournda Field Studies Centre	1977	Jones, R.	Bournda Field Studies Centre	74/4100
Brady, P.	The Aboriginal Community Education Project at Wreck Bay - Jervis Bay (Reproduced in Nicholas, 1979)	1979	Nugent, A.	Involvement of Aboriginal Children in Educational Decision Making	74/75
Cassin, E.W.	The Geography Multi-Media Project: Interviews with Project Personnel	1977	Cordwell, K.A.	Multi-Media Geography Laboratory	74/5620
Connors, L.	The Women's Electoral Lobby Careers Brochure (Reproduced in Nicholas, 1979)	1979	Connors, L.	Careers Booklet	74/1376

AUGMENTED EVALUATION REPORT			PROJECT		
AUTHOR	TITLE	DATE	GRANTEE	TITLE	FILE NO.
Cordwell, K.A.	A Description and an Evaluation of the Multi-Media Geography Laboratory	1977	Cordwell, K.A.	Multi-Media Geography Laboratory	74/5620
Fordham, A.	The Film Creativity Project of the A.C.T. Children's Film and Television Council (Reproduced in Nicholas, 1979)	1979	Mann, P.	Equipment for Film Creativity in Schools	74/1286
Fraser, B.J. & Koop, A.J.	An Evaluation of Some Motivational Materials Related to the History of Mathematics (see also Fraser, 1977; Fraser & Koop, 1978)	1977	Grunseit, R.	Development of High Interest Level Mathematics Material	74/184
Groundwater-Smith, S.	Evaluation of "Centres for Learning" (see also Groundwater-Smith and Nicoll, 1980a, ch. 5)	1977	Neil, R.	Centres of Learning	74/4512
Hardy, J.	On a Weird and Unpredictable Path: The Community Counsellor Project at the Canberra School Without Walls (Reproduced in Nicholas, 1979)	1979	Ward, E.	Community Development Co-Ordinator and Counsellor	74/1348
Hogben, D.	Beltana Field Study Centre	1976	Hull, I.	Field Study Centre in Historic Reserve	74/1382
Howard, W.L.	An evaluation of a Project Seeking to Devise Science Resource Materials for Senior High School Students	1977	Quimby, R.D.	Regional Educational Workshop	75/459

AUGMENTED EVALUATION REPORT			PROJECT		
AUTHOR	TITLE	DATE	GRANTEE	TITLE	FILE NO.
Ingle, R.	An Evaluation of a Community Reading Centre	1978	Harris, B. Liddell, G. & Symonds, R.	A Community Reading Centre	76/6038
Jackson, M.	The Toy Town Library	1976	Colville, M. & Gilmore, K.	"Toy Town" - Library for Handicapped Children	74/4867
Johnstone, J.N.	Evaluation Report on the Cyclical Timetable Project at Gymea High School (see also Johnstone and Fraser, 1980)	undated	Sellors, T.P.	Cyclical Timetable Project	74/286
Jones, G.	An Augmented Evaluation of Two Remedial Projects Funded by the Australian Schools Commission under the Innovations Program	undated	McSweeney, P.	Primary Remedial Mathematics Project at Three Presentation Congregation Schools	74/745
			Williamson, D.	Secondary Remedial Mathematics Project at Kedron High School	74/4399
Lange, J.	An Evaluation of Open Area Programs at Two Brisbane Secondary Schools	undated	Donovan, D.	Open Education Project	74/4384
			Sisters M. Brigid & Leonie Marie	An Interdisciplinary Project	74/764
Lehman, R.J.	An Evaluation Report to N.S.W. State Evaluation Sub-Committee Innovations Program for Schools Commission on the Implementation of a Module of Studies in the Junior Forms	1978a	Trudgeon, E.M.	A module of Studies for Junior Forms	74/5904

AUGMENTED EVALUATION REPORT			PROJECT		
AUTHOR	TITLE	DATE	GRANTEE	TITLE	FILE NO.
Lehman, R.J.	An Evaluation Report to New South Wales State Evaluation Sub-Committee Innovations Program for Schools Commission on an Integrated Social Science Course	1978b	Reynolds, G.	An Integrated Social Science Course	74/5916
Morison, B.	The Motor Stimulation Project	1978	Metcalfe, J.	Gross Motor Equipment for Moderately Mentally Handicapped Children	76/6017
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Steen, F.	Canberra's Introductory English Centre (Reproduced in Nicholas, 1979)	1979	Hopkins, E.	Introductory English Centre	74/5557
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